



ARIZONA DEPARTMENT OF WATER RESOURCES ANNUAL REPORT 2020

OUR MISSION

To protect, conserve, and enhance Arizona's water supplies by confronting water management challenges in a bold, thoughtful, and innovative manner

OUR VISION

Reliable water supplies to meet the needs of current and future Arizonans

OUR VALUES



QUALITY:

We commit to the highest standards of technical expertise and professionalism



INTEGRITY:

We act with integrity



EMPOWERMENT:

We encourage employees to be problem solvers



VIGILANCE:

We are vigilant in protecting the State's water rights and supplies



LEADERSHIP AND COLLABORATION:

We engage with Arizona's water community and provide leadership in developing innovative solutions to conserve and augment the State's water supplies



CONTINUOUS IMPROVEMENT:

We strive to innovate, streamline processes, add value and increase productivity



CONFIDENCE:

We build confidence by providing timely services and accurate information, and by promoting consensus-based options that create water resiliency

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DIRECTOR'S WELCOME

Dear Governor Ducey, President Fann, and Speaker Bowers:

It is a privilege to submit to you the Arizona Department of Water Resources' Annual Report for Fiscal Year 2020 as required by Arizona Revised Statute § 45-111. This report includes an overview of the Department's activities and accomplishments between July 1, 2019, and June 30, 2020.

It is our primary mission to ensure that Arizona has long-term, reliable water supplies that help support our State's continued economic prosperity.

I am gratified to report the significant contribution that the Arizona Legislature and the Governor have made this year to that mission.

On May 20, 2019, at a signing event atop of Hoover Dam, the long, difficult multi-state negotiation process over the Drought Contingency Plan (DCP) finally concluded.

It did not take long for DCP to create value to Arizona and the Colorado River Basin by helping lower the risk of Lake Mead falling to critically low elevations. Before the end of 2019, the DCP agreement contributed to keeping Lake Mead elevations above the 1075-foot stage, an important achievement.

We can now say with confidence that DCP is a success. We continue to work with Central Arizona Project agricultural districts to distribute legislatively approved funds for their groundwater infrastructure programs.

Now, we have an opportunity to build on the momentum of the DCP process and prepare for the negotiations of the existing guidelines for the operation of the Colorado River system post-2026 (often referred to as "Reconsultation").

On January 31, 2019, when Arizona's DCP was passed by the Arizona Legislature and signed by the Governor, we were able to achieve success because we worked together. We intend to revive that spirit of collaboration and cooperation by bringing back a process similar to the DCP Steering Committee as we prepare for Reconsultation.

Toward that goal, the General Manager of the CAP and I initiated a listening and data-collection effort and met individually with delegates from the former DCP Steering Committee. The delegates include those representing Tribes, the Arizona Legislature, cities, agriculture, development and other water users.

These meetings were focused on sharing expectations and thoughts on what the Reconsultation process will look like. The vision took the form of a new steering committee – the Arizona Reconsultation Committee – which first met on June 25, 2020. Its role is to maintain Arizona's intrastate discussion as the formal system-wide Reconsultation process unfolds. The anticipated result is for the ARC to develop an Arizona perspective to guide the Reconsultation and to prepare Arizona to engage with the U.S. Bureau of Reclamation, other Colorado River Basin States, the Republic of Mexico, Tribes, NGOs and others.

In addition, with the support of the Governor and the Arizona State Legislature, we have maximized our response to other water challenges within the State.

I was honored to serve as an appointed member of the House Ad Hoc Committee on Groundwater Supply in Pinal County to help address water supply issues in the Pinal Active Management Area.

The major outcome of the Committee thus far has been the creation of a local stakeholder group. The stakeholder process should be community-driven. The State's role is to provide assistance and to comment on proposals.

The objective is to continue the State's commitment to upholding the consumer protection and water sustainability objectives of the Assured Water Supply Program.

The Governor has also tasked ADWR to work with stakeholders, legislators, and community leaders to analyze and recommend opportunities for augmentation, innovation, and conservation through the creation of the Governor's Water Augmentation, Innovation and Conservation Council (Council).

The Council has established four committees that serve as valuable forums to identify and discuss issues, and to develop, evaluate, and prioritize recommendations in order to advance water management efforts inside and outside Arizona's Active Management Areas (AMAs).

We are also committed to achieving the Governor's vision of Arizona as the number one state to live, work, play, recreate, retire, visit, do business, and get an education.

We have effectively utilized the Arizona Management System's tools and techniques on numerous fronts and have seen great success in many areas.

Our Data Management section, in conjunction with the Recharge and Active Management sections, has made important data relating to Arizona's water use more easily available to the public. These efforts help save staff time and significantly increase the public's access to data.

Also, our Compliance, Field Services and Wells sections met to address concerns related to potentially dangerous open wells.

Utilizing their AMS skills, the group designed a well-capping process, contracted with Arizona Correctional Industries to make temporary well caps, prioritized known open wells, and trained ADWR staff on how to cap wells.

Thanks in large part to the positive publicity generated by this project, we have continued to receive notifications of additional open wells. FY 2020 marked the 100th open well successfully capped through our initiative.

Overall, this past year was a prime example of how a lot can happen in a short period of time. But there's still more work to be done as we continue to play a prominent role in protecting Arizona's water supplies to support the State's growing economy.

Sincerely,



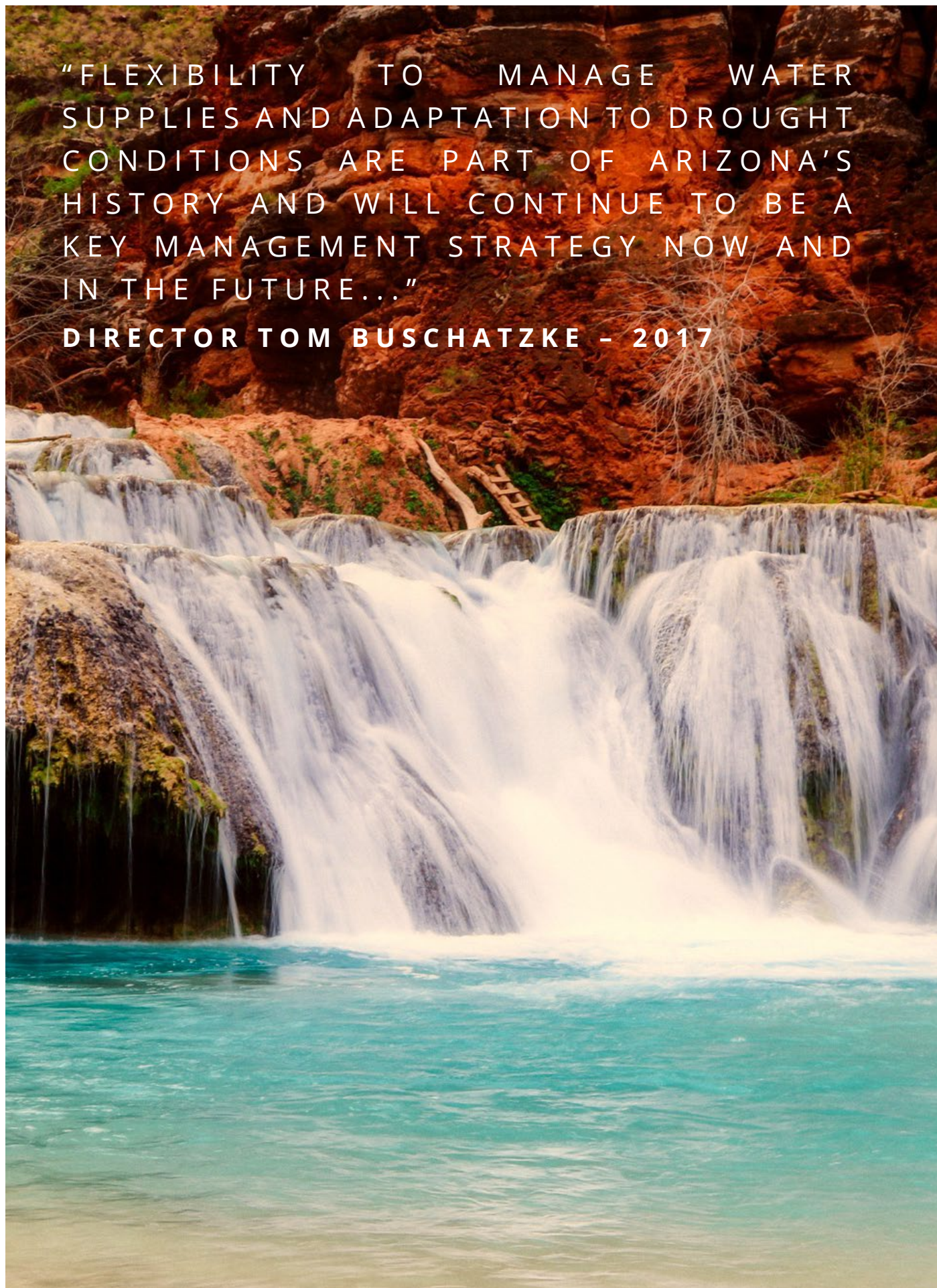
TOM BUSCHATZKE

Director



"FLEXIBILITY TO MANAGE WATER SUPPLIES AND ADAPTATION TO DROUGHT CONDITIONS ARE PART OF ARIZONA'S HISTORY AND WILL CONTINUE TO BE A KEY MANAGEMENT STRATEGY NOW AND IN THE FUTURE..."

DIRECTOR TOM BUSCHATZKE - 2017



COLLABORATIVE EFFORTS ON THE COLORADO

The Drought Contingency Plan (DCP) is being implemented across the Colorado River Basin, including in Mexico, and is already generating benefits to the Colorado River system. In 2019, Lower Basin water users are contributing more than 700,000 acre-feet of storage and system conservation to Lake Mead. These contributions, along with a favorable snowpack and runoff year, have helped to temporarily stabilize Lake Mead above elevation 1075' (Tier 1 shortages).

In 2020, the system's operating condition will be Tier Zero, requiring reductions of 192,000 acre-feet from Arizona, 8,000 acre-feet from Nevada, and 41,000 acre-feet from the Republic of Mexico. These Arizona reductions will fall entirely on Central Arizona Project (CAP) supplies, impacting CAP supplies for water banking, replenishment and agricultural users. The Tier Zero reductions will not impact tribal or municipal CAP water users. These reductions are consistent with what CAP water users have experienced since 2015. Also, many Arizona water users are continuing to contribute to the health of the Colorado River system by creating ICS and providing system conservation efforts in 2020.

Thanks to all of the Lower Basin Drought Contingency Plan (LBDCP) Steering Committee Delegates, Arizona is prepared for the first year of the LBDCP implementation. The Steering Committee process confirmed that Arizona is stronger together.

Moving forward, ADWR and CAP jointly have acknowledged that the LBDCP is a temporary bridge, and more work is necessary to build a more resilient and healthy Colorado River water supply for Arizona. The next step will be preparing Arizona for the negotiations of Colorado River operations post-2026, often known as the "reconsultation" of the 2007 Guidelines.

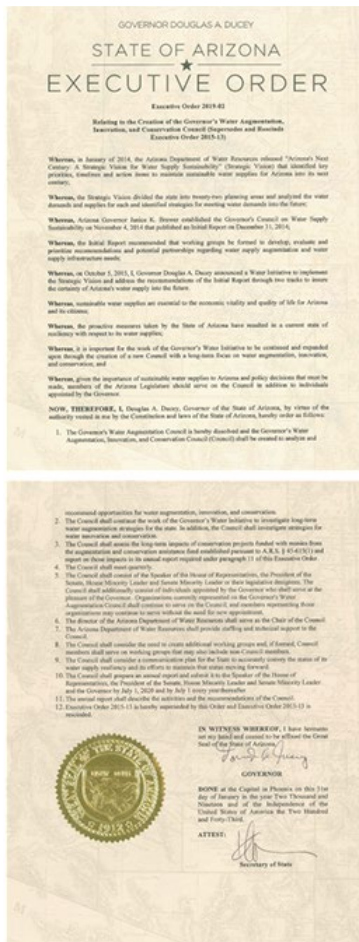
In order to prepare for reconsultation, ADWR and CAP intend to build on the success of the LBDCP Steering Committee process. The process, which was co-led by ADWR Director Buschatzke and CAP General Manager Ted Cooke, was predicated on transparency, cooperation and collaboration. By continuing the successful collaboration, we explore how best to prepare Arizona for the development of new operating rules for the Colorado River system after 2026.



Lake Mead by Hoover Dam

ARIZONA WATER INITIATIVE

"Sustainable water supplies are essential to the economic vitality and quality of life for Arizona and its citizens. The proactive measures taken by the State of Arizona have resulted in a current state of resiliency with respect to its water supplies... it is important for the work of the Governor's Water Initiative to be continued and expand through creation of a new Council with a long-term focus on water augmentation, innovation and conservation." (Executive Order 2019-02)



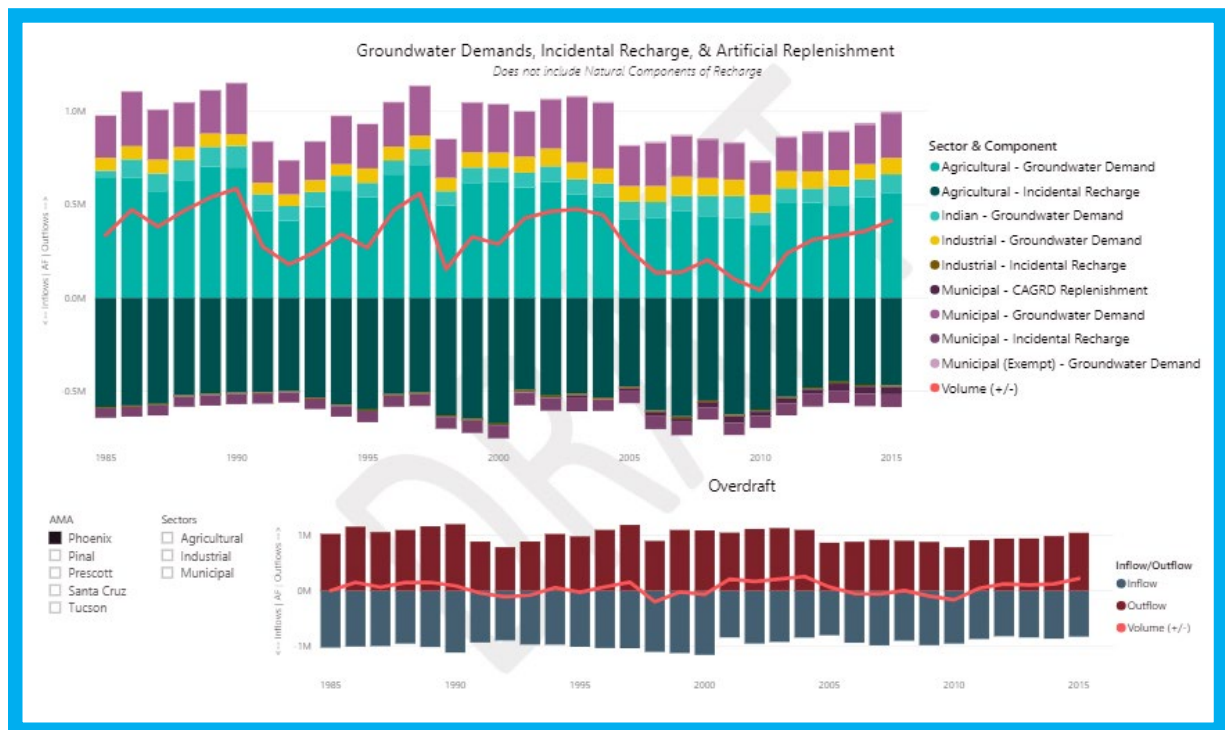
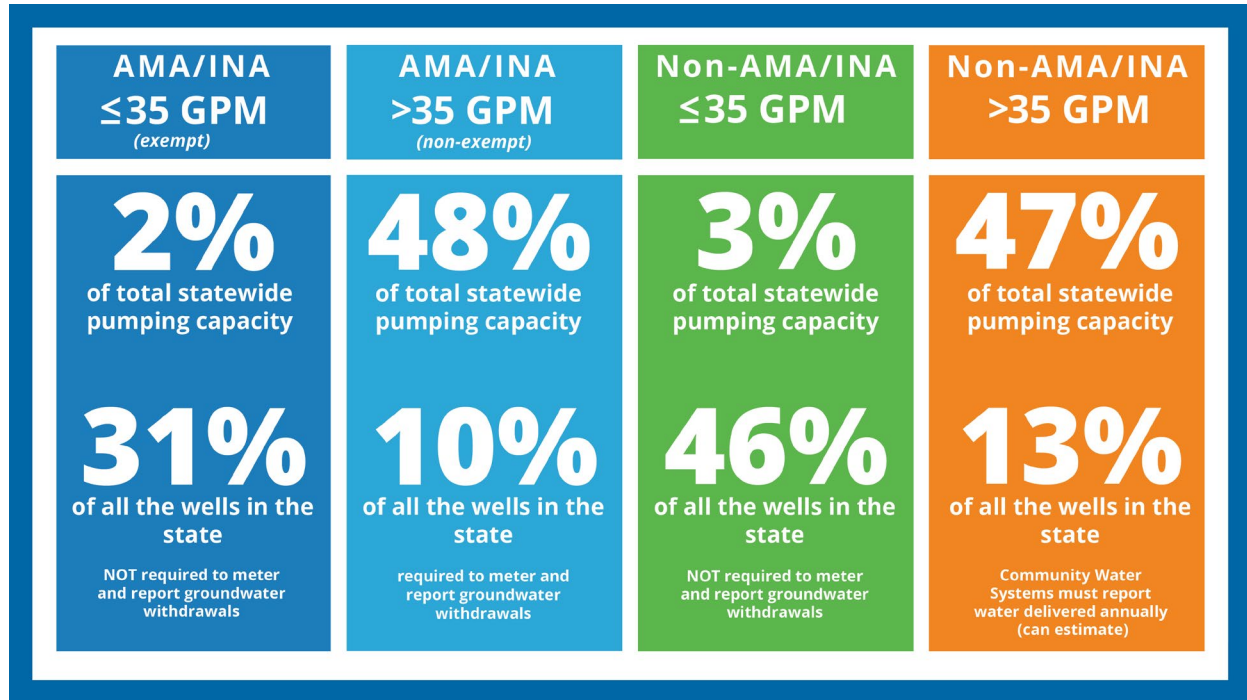
The Governor's Water Augmentation, Innovation and Augmentation Council (Council) is a forum for discussion of water issues. It brings together a diverse group of stakeholders from across the State to raise, analyze, discuss, and vet what are often difficult and complex issues, as directed by the Governor, to ensure a sustainable water future.

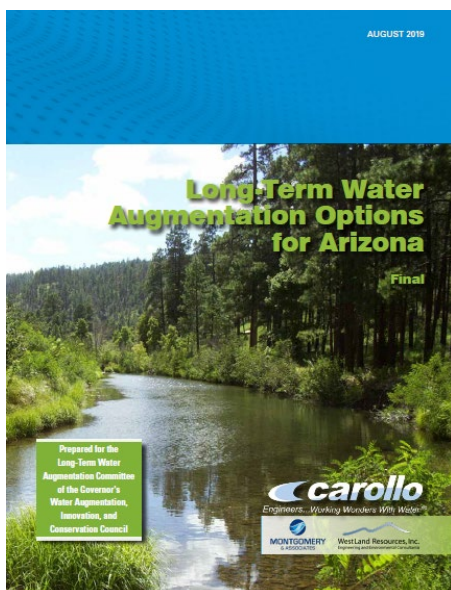
The Council continues the legacy of cooperative long-term strategic water planning in Arizona. Through the Council and its committees, stakeholders across the water-use sectors are encouraged to confront difficult issues and to work collaboratively to identify and develop solutions to challenges faced by water users throughout the State.

There are currently 42 members appointed to the Council. In order to enable the discussions that need to occur among diverse stakeholders and legislators to achieve good policy outcomes, members of the Legislature are among those appointed. The Director of ADWR serves as the Chair of the Council.

The Council is tasked with identifying and recommending opportunities for water augmentation, innovation, and conservation. The Council is also charged with providing guidance to the Director of ADWR on issues upon the Director's request.

The Council's committees, where much of the work of the Council is accomplished, includes Council members as well as non-Council members. Participation in the committee meetings is open to the public. The Council's committees work to identify and discuss issues and to develop, evaluate, and prioritize recommendations for the Council to consider.





Two new Council committees began their work in FY 2020: The Post-2025 Active Management Areas Committee and the Non-Active Management Area Groundwater Committee. Both committees are tasked with identifying groundwater management challenges and developing potential solutions and recommendations for those challenges.

In response to one of the issues the committee identified, ADWR staff developed an interactive dashboard of groundwater demands, incidental recharge, and artificial replenishment that is now available on the ADWR website. This dashboard is intended to aid in discussion and to quantify the components of unreplenished groundwater demand.

The Long-Term Water Augmentation Committee presented the report entitled *Long-Term Water Augmentation Options for Arizona* to the Council in August 2019. It is the product of a year-long

stakeholder undertaking that evaluated the State's 22 planning areas to identify potential augmentation strategies appropriate to each planning area that communities can use as they consider solutions to meet their needs.

The Desalination Committee continued to evaluate and overcome barriers to desalination projects. The committee identified opportunities to assist in developing potential projects. During the past year, the committee particularly focused on the exploration and discussion of the challenges and opportunities involved in the desalination and use of brackish groundwater.

In FY 2020, the Council was informed regarding ADWR's ongoing work to complete and promulgate the Fourth Management Plans and to develop the Fifth Management Plans, and at Chairman Buschatzke's request, the Council provided feedback regarding potential options to complete the remaining Fourth Management Plans for the Phoenix, Pinal, and Santa Cruz AMAs.

The Council was apprised of the Pinal AMA Assured Water Supply physical availability issues and the stakeholder process that was beginning. The Council requested and was provided information on the general stream adjudications and the progress toward safe-yield in the AMAs, as well as the challenges of analyzing that progress. They also requested the opportunity to address tribal water rights settlements. This began with a background presentation at the March 13, 2020, meeting and will continue with a process that allows both tribal and non-tribal perspectives to be shared at upcoming meetings.



"WHAT WE'VE DONE SINCE THE 1980S
IS CONSERVATION...WE TOOK THE SLOW
AND STEADY PATH."

DIRECTOR TOM BUSCHATZKE - 2016



ADJUDICATION SUPPORT

The State of Arizona is conducting a general stream adjudication of surface water rights in two major portions of the state: the Gila River system and Little Colorado River system. General stream adjudications are judicial proceedings to determine the nature, extent and relative priority of water rights in Arizona. These complex and lengthy processes began in 1974 and are conducted in State Superior Courts for Maricopa and Apache counties. They address surface water rights and claims to surface water based upon both State and Federal law.

The Adjudication Technical Support Unit investigates claims for water rights, publishes comprehensive Hydrographic Survey Reports for watersheds and tribal lands, and prepares technical reports on other matters as requested by the adjudication court. In FY 2020, ADWR developed more than 80 reports and maps for the court, provided expert testimony at multiple hearings, and conducted field investigation of various water uses in several areas of the State.

ADWR continues to actively manage a database of more than 100,000 individual water rights claims to support the adjudication process. Program administrators process, maintain and update information related to Statements of Claimant (SOCs) filed by water users. The program mails New Use Summonses to new water users to notify them that the adjudication proceedings are underway and to provide information about how to participate in the court process. In FY 2020, ADWR mailed more than 1,200 New Use Summonses and additional educational information to persons who may have initiated new water uses within the last year. The summonses and other outreach efforts resulted in more than 700 new SOC's being filed this year.



C.C. Cragin Reservoir

Implementing AMS principles supports process improvements and increased efficiencies to meet the growing complexities of the adjudication proceedings. Using these principles, the Adjudications program has improved the use of technologies to streamline processes, including the following advancements in FY 2020:

- Policy and procedures for the use of Small Unmanned Aircraft Systems (sUAS) to conduct field surveys in remote areas,
- GPS-enabled sonar devices to capture georeferenced depth measurements in small water bodies, and
- Improvements to the Adjudications Info System (AIS) and the SOC database.

The Adjudications Technical Support Unit is also beginning to utilize new data storage technologies for their GIS data that will allow multiple edits simultaneously, eliminating dozens of hours of processing time each month. This efficiency will help in further implementing document organization (Digital 5S) strategies.



GILA RIVER ADJUDICATION

In FY 2020, ADWR continued to provide technical support for ongoing court proceedings surrounding the legal concept of subflow in the San Pedro River watershed. ADWR's Hydrology Division is conducting groundwater modeling of the San Pedro to support future subflow depletion testing. In the March 4, 2020, Minute Entry Order, the court requested that ADWR produce a report defining the subflow zone boundaries for the Verde River watershed by June 1, 2021. In accordance with the Arizona Supreme Court's ruling in Gila IV, ADWR is mapping the Verde River subflow zone boundary within the saturated floodplain Holocene alluvium. Planning is also underway for water rights investigation work in the Verde River watershed.

Adjudications staff continued to participate in meetings with water right claimants and objecting parties to assist in the resolution of various contested cases. In FY 2020, more than 80 court-ordered actions were completed involving over 50 individual contested cases. ADWR staff reviewed more than 160 abstracts and provided numerous reports and maps for the Special Master regarding individual proposed water rights, thereby expanding the Catalog of Proposed Water Rights approved by the Special Master.



Morman Lake in Coconino County



Woods Canyon Lake is located within the Apache Sitgreaves National Forest in Coconino County

LITTLE COLORADO RIVER ADJUDICATION



Looking over a portion of the Verde River Watershed from atop the Mogollon Rim.

In response to a 2018 court order requesting technical guidance on appropriate de minimis standards to streamline the adjudication, ADWR filed a technical report with the court and sent notice of the report to over 9,000 claimants and water users in the Lower Little Colorado River (LLCR) subwatershed. The technical report analyzed claimed water uses for stockpond, stockwatering, and wildlife purposes and their cumulative impact on surface water outflow from the LLCR subwatershed. The court received 35 Objections and Comments to the report. In March 2020, ADWR filed a report addressing technical questions raised by several parties in their Objections and Comments filed with the court.

As part of the 2018 Order, the court also requested ADWR to investigate water rights claims and water uses and to prepare a Preliminary Hydrographic Survey Report (PHSR) for the LLCR subwatershed. The PHSR will provide water users and interested parties with an opportunity to review and comment on ADWR's investigation results. ADWR made a big push on the LLCR PHSR effort in FY 2020. Over 8,000 hours of water rights investigations were conducted, both in the office and in the field. The LLCR PHSR is due to the court in FY 2021.

The Preliminary Navajo HSR concerning domestic, commercial, municipal, and industrial (collectively DCMI), stockponds, stockwatering, and wildlife watering uses for the Navajo Reservation was published in FY 2019. Subsequently, the Adjudications Technical Support Unit received revised SOC's from the Navajo Nation and the United States, which updated and slightly changed their DCMI claims. The Technical Support unit evaluated these revised SOC's and completed the Final Navajo Reservation HSR for stockponds, stock and wildlife watering, and DCMI water uses in December 2019. Notice of publication was sent to over 11,000 recipients in the watershed and objections were due to the Clerk of Superior Court in Apache County in June 2020.



Clear Creek Reservoir in Winslow Arizona is fed by Clear Creek and drains to the Little Colorado River.

DEPARTMENT OPERATIONS

The Arizona Department of Water Resources (ADWR) is responsible for ensuring Arizona has dependable long-term water supplies in Arizona.

Since it began in 1980, ADWR administers the state's water laws, except those related to water quality, explores methods of augmenting water supplies to meet demand, and develops and implements policies that promote water conservation. ADWR is responsible for supervising and controlling jurisdictional dams and reservoirs in the State to protect life and property.

Additionally, the Director negotiates with agencies and governments outside Arizona in matters related to water. For example, the Director is authorized, for and on behalf of the State of Arizona, to consult, advise, and cooperate with the Secretary of the Interior on issues related to the Colorado River.

BUDGET FISCAL YEAR 2020

OPERATING LUMP SUM	\$10,407,700
SPECIAL LINE ITEM (SLI) - ADJUDICATION SUPPORT	\$1,742,900
SLI - ASSURED AND ADEQUATE WATER SUPPLY ADMINISTRATION	\$1,995,100
SLI - AUTOMATED GROUNDWATER MONITORING	\$411,800
SLI - COLORADO RIVER LEGAL EXPENSES	\$500,000
SLI - CONSERVATION AND DROUGHT PROGRAM	\$410,700
SLI - RURAL WATER STUDIES	\$1,164,000
ARIZONA WATER PROTECTION FUND DEPOSIT	\$750,00
ARIZONA SYSTEM CONSERVATION FUND	\$30,000,000
AUGMENTATION & CONSERVATION FUND	\$2,000,000
TEMPORARY GROUNDWATER & IRRIGATION EFFICIENCY PROJECTS	\$20,000,000
TOTAL	\$69,382,200
PART OF DROUGHT CONTINGENCY PLAN LEGISLATION	

ARIZONA MANAGEMENT SYSTEM



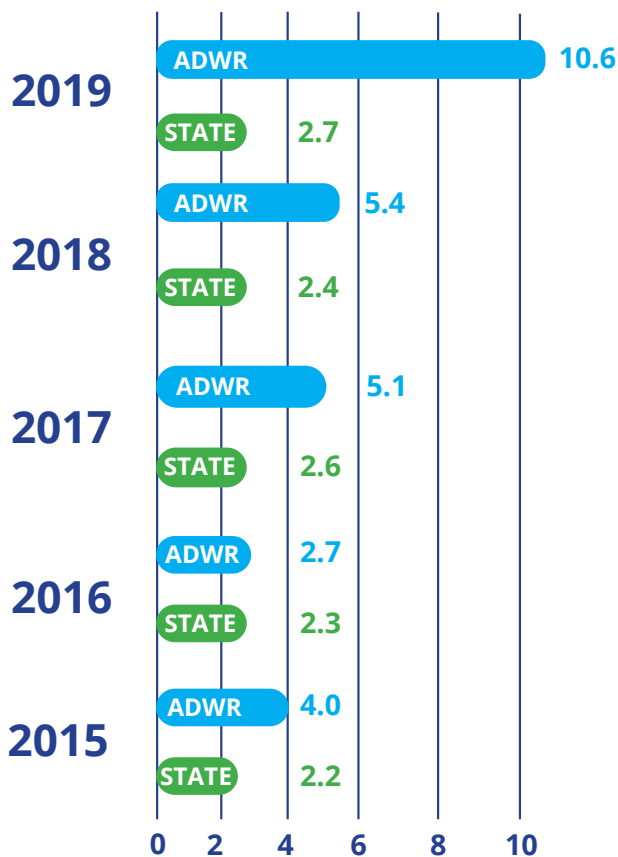
FY 2020 marks six years since ADWR first deployed the Arizona Management System (AMS). Throughout this annual report, individual programs will showcase their successes utilizing AMS tools. These stories illustrate how ADWR employees are integrating LEAN practices in their work.

ADWR teams carried on their continuous improvement journey by focusing on their team's ability to communicate, problem-solve, establish best practices, and become leaders. Their journey this year included the implementation of processes that align strategic goals with technology projects and technology with problem-solving tools.

The extent to which ADWR employees are involved in, enthusiastic about and committed to their work continues to rise across our Department.

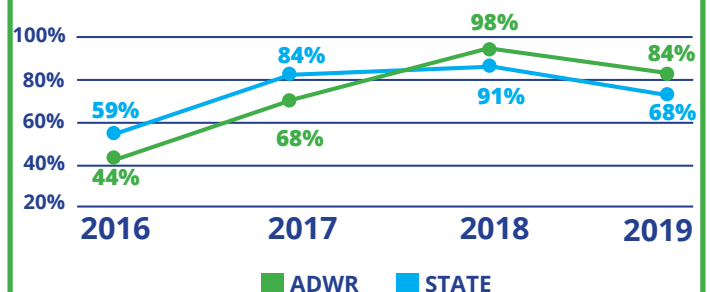
ENGAGEMENT RATE COMPARISON

The extent to which staff is involved in, enthusiastic about and committed to their work and workplace.



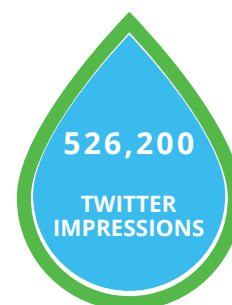
PARTICIPATION RATE COMPARISON

The direct participation of staff to help an organization fulfill its mission and meet its objectives by applying their own ideas, expertise, and efforts towards solving problems and making decisions.



STAKEHOLDER ENGAGEMENT

Since early 2016, ADWR has committed to expanding its communications outreach efforts through the Internet and its newsletter subscription lists, providing information to Arizonans and others who are eager to learn about how we manage the State's most valuable resource.



The outreach mission of ADWR is to ensure that the largest possible audience is receiving up-to-date information about Arizona's hydrology, including Colorado River supplies, surface water and groundwater, the condition of the State's watersheds, summer monsoon and winter storm activity, and more.

Further, ADWR is the repository of one of the nation's most comprehensive databases on ground subsidence and earth fissures. ADWR is committed to ensuring that the public is aware of such resources and can easily access them.

In pursuit of that mission, the ADWR communications team employs a wide array of media platforms. Our communications team produces a weekly ADWR newsletter – Arizona Water News – that includes up-to-date information on the latest developments in the State. In less than four years, Arizona Water News has increased from 100 subscribers in 2016 to over 10,000 in FY 2020.

In addition, ADWR's online blog, also known as Arizona Water News, featured more in-depth stories on water topics and continued to attract readers from Arizona, the Southwest, and multiple countries across the world. We continue to expand our presence on social media aggressively. Since the launch in June 2016 of ADWR's Facebook Page, it has organically reached over 81,071 readers and viewers. In addition, ADWR's YouTube channel has received over 2,365 views and over 14,310 minutes watched. During FY 2020, ADWR's Twitter account received over 430,600 impressions.

OFFICE OF DATA MANAGEMENT

The Office of Data Management's mission is to move ADWR toward a culture of enterprise-wide data management. ADWR creates this culture by instituting best practices that provide clarity, confidence, and consistency in the data we collect, create, and provide.

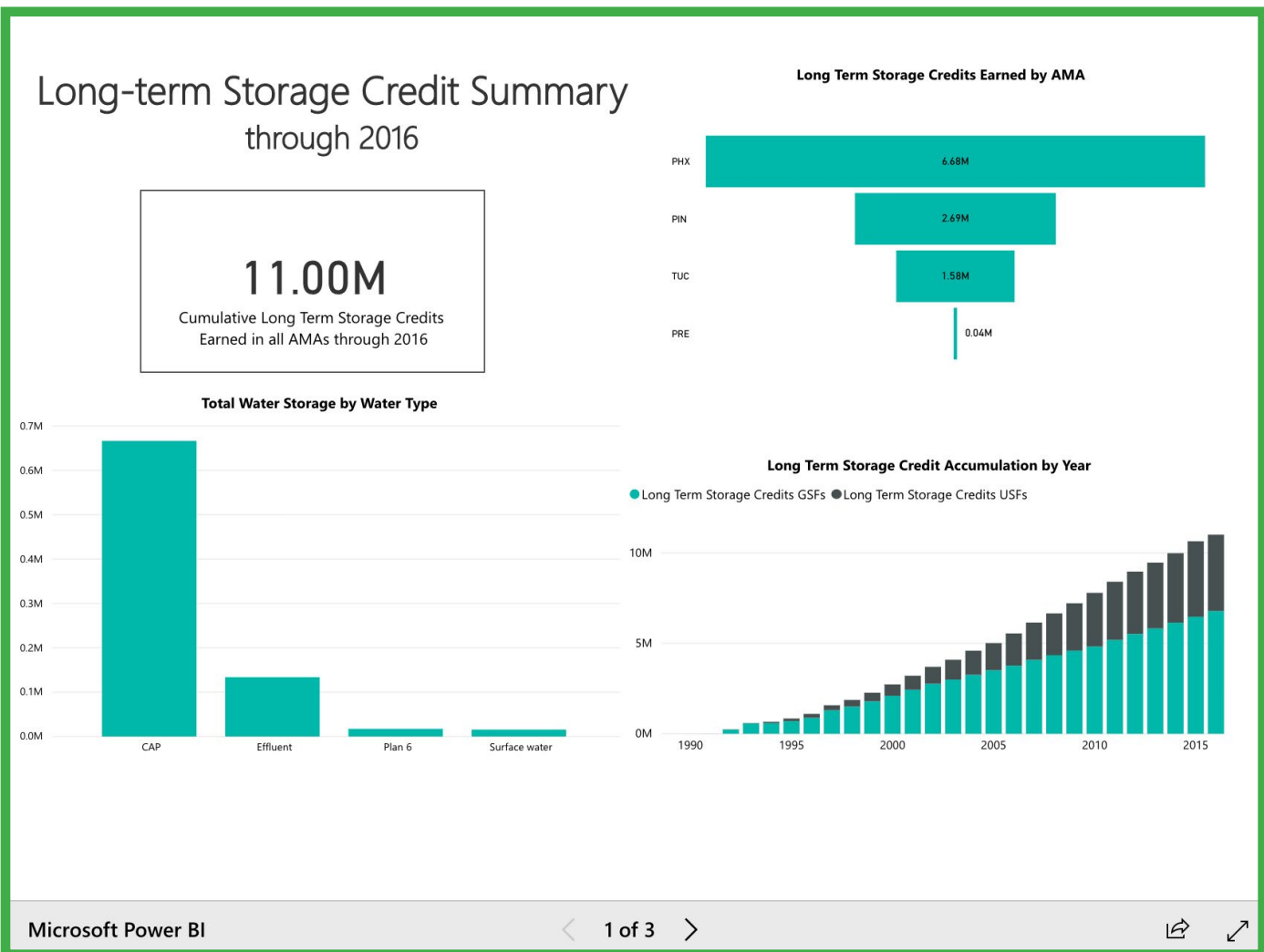


In FY 2020, the third year of the program, the ADWR strategy of adding critical data sets to the data warehouse continued. Additionally, ADWR implemented the following best practices:

1. The existing Data Governance group, formerly comprised of representatives from business units with data in the warehouse, expanded to include a representative from each division. Focusing on shared data issues, this agency-wide group will be integral to the creation of data policies and practices in alignment with the ADWR mission.
2. Over ninety-five percent of the agency has taken the “Data is a Critical Business Asset” class online, created by ASET. This class is also part of the on-boarding process, which has ensured new employees learn about treating data as an asset as soon as they begin working at the agency.
3. Continuing the strategy of making data more accessible to the regulated community, the public and decision-makers, ADWR has added a comprehensive Wells dataset to the data warehouse. For the first time ever, this dataset aggregates the over 217,000 registered wells by regions (basin, watershed, county, and AMA), well type, primary water use, drill status and year drilled. This dataset, the first in the ADWR data warehouse that is automatically updated nightly, is accessible on the ADWR's web page as an interactive report, or in its entirety on the ADWR's Data Center as a live query.

NOTEWORTHY SUCCESSES:

1. Office of Data Management staff were part of a small multi-agency team that planned and hosted the 2019 Statewide Data Management Conference, which was attended by nearly ninety people who overwhelmingly provided positive feedback on the conference.
2. The ADWR Office of Data Management has been happy to provide information requested by other state agencies interested in learning how ADWR began and continues to grow its data management program. ADWR has an open invitation to assist any state agency and is an active participant in the State Data Management Steering Committee and sub-committees.



HOW DATA MANAGEMENT IS AIDED BY THE ARIZONA MANAGEMENT SYSTEM



METRICS, METRICS AND MORE METRICS



GEMBA ON DATA QUALITY STRATEGIES



PLAN. DO. CHECK. ACT.



LEADER STANDARD WORK, AUDITING POLICIES BEING FOLLOWED

LEGAL - COMPLIANCE ENFORCEMENT

In FY 2020, ADWR's Compliance Enforcement Coordinator worked with various Department sections to review violations, public complaints, and general compliance issues impacting the state's water resources. The agency-wide coordination, led by the Compliance Enforcement Coordinator, enabled an efficient and effective process to address public complaints, concerns, and violations promptly.

ADWR responded to numerous water-related public complaints and concerns during FY 2020. Often, the Department partnered with other state agencies such as the Arizona Department of Environmental Quality and the Governor's Office of Constituent Services to respond to and resolve these complaints and concerns.

In FY 2020, ADWR continued to assist citizens across the State by facilitating the capping of hazardous open wells. ADWR's Open Well Capping Initiative was created in the summer of 2018 when Department staff facilitated an effort to efficiently and effectively address hazardous open wells in Arizona. These open wells pose a significant threat to public safety and threaten the contamination of precious groundwater supplies. FY 2020 also marked the 100th open well successfully capped through the ADWR Initiative. This demonstrates that over 100 dangerous open wells are no longer a threat to public safety, thanks to the hard work and dedication of ADWR staff.

OPEN WELL CAPPING INITIATIVE



STEP 1:

ADWR Field Services encountered an emergency hazard open well near a major road.



STEP 2:

ADWR Temporary Cap, manufactured by ACI, was placed on well; Compliance Enforcement Program notified the owner of the issue.

2A:



2B:



2C:

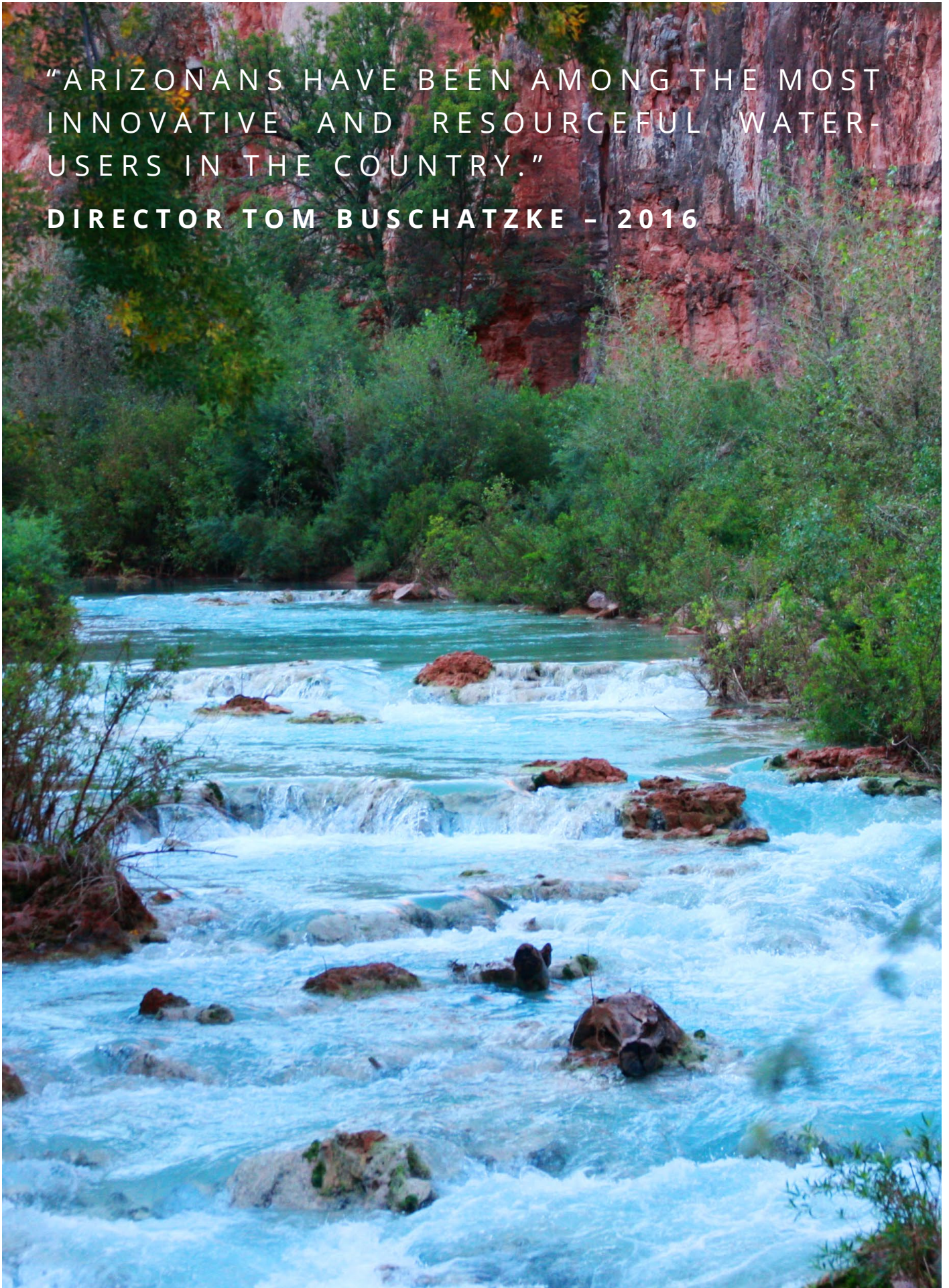


STEP 3:

The owner responded and secured a permanent cap. ADWR retrieved the temporary cap and the well is now safe. The Well file has been updated by ADWR and the investigation closer by the Compliance Enforcement Program.

"ARIZONANS HAVE BEEN AMONG THE MOST
INNOVATIVE AND RESOURCEFUL WATER-
USERS IN THE COUNTRY."

DIRECTOR TOM BUSCHATZKE - 2016



COLORADO RIVER MANAGEMENT

The Colorado River is critical to the State of Arizona as it provides approximately forty percent of its annual water use. ADWR is responsible for the protection and comprehensive management of Arizona's 2.8 million acre-feet annual Colorado River apportionment on behalf of the State. The Director represents Arizona on matters related to the Colorado River and is authorized to consult, advise, and cooperate with the Secretary of the Interior of the United States. The various duties and responsibilities of the Colorado River Management (CRM) Section, including the notable accomplishments in each category, are broken down as follows:



ENTITLEMENT OVERSIGHT

ADWR monitors entitlements of Colorado River water in the mainstream region of the river. These entitlements include water deliveries through the Central Arizona Project to cities that include Phoenix and Tucson. ADWR makes recommendations to the U.S. Bureau of Reclamation (Reclamation) on proposed allocations and transfers of Colorado River entitlements.

In FY 2020, the major activities on entitlement oversight included:

1. The completion of two requests for consultation and comment on assignments of mainstream Colorado River entitlements.
2. One new consultation for proposed transfers of Colorado River entitlements.
3. Review of two CAP subcontracts between Reclamation and irrigation districts involving inclusions.

PLANNING AND OPERATIONS

ADWR collaborates with the Federal government and other Colorado River Basin States to better prepare for Arizona's long-term water needs. Colorado River Management staff model the impacts of management strategies, including the DCP, basin-wide hydrological conditions and water-use demands throughout the basin. During FY 2020, staff collaborated on the development of the Annual Operating Plan and were participants in the development of Reclamation's 24-Month Studies. Staff also provided technical assistance toward the completion and execution of agreements to implement the LBDCP in Arizona. Notable agreements included the Colorado River Indian Tribes (CRIT) System Conservation Agreement, the Groundwater and Irrigation Efficiency Fund Agreement. Staff also implemented actions pursuant to the LBDCP Framework Agreement, conducted verification of the lands that were fallowed pursuant to the CRIT System Conservation Agreement, and processed applications to avail monies from the temporary groundwater and irrigation efficiency fund.

BINATIONAL NEGOTIATIONS

Colorado River Management continues to operate consistent with the provisions of Minute 323, executed by the United States and Mexico in September 2017. The Minute includes a commitment by Mexico to participate in coordinated actions with the Lower Basin States to codify Intentionally Created Surplus (ICS) contributions at specific levels in Lake Mead, known as the Binational Water Scarcity Contingency Plan (BWSCP). This pledge was made with the understanding that the United States would adopt its DCP, which was implemented on May 20, 2019. ADWR continues to be active in binational correspondence under the Minute 323 umbrella, and provides staffing for environmental, hydrology, and salinity work groups, among others.

The "Binational Study of Water Desalination Opportunities in the Sea of Cortez" represents an important step in the binational collaboration between Mexico and the United States to jointly augment Colorado River water supplies in the face of scarcity as envisioned in Minute 323. The study identified several seawater desalination opportunities along the Sonoran coast of the Sea of Cortez to benefit both countries and respect the environmental values of the region. The next steps identified in the study are to explore site optimization and sizing alternatives, rights of way, power availability, and a framework for the exchange of water from Mexico to the United States. Efforts will also be ongoing through the Minute 323 binational process to compare these seawater desalination opportunities to other new water sources projects in order to develop solutions that address the risks shared by Mexico and the United States on the Colorado River system. The implementation of a desalination project will require the specific agreement of the two governments by means of an International Boundary and Water Commission Minute.

COLORADO RIVER BASIN SALINITY CONTROL PROGRAM

The Colorado River Basin Salinity Control Program focuses on improving Colorado River water quality for water users in the United States above Imperial Dam by promoting efforts to reduce salinity levels in the Colorado River.

These efforts mitigate environmental and economic impacts due to increased salt concentrations in the Colorado River Basin. ADWR fields one of three Arizona representatives selected by the Governor to represent the State in the Salinity Control Program Forum. In FY 2020 ADWR, along with the other Basin States, continued to provide technical expertise and policy guidance to proposed and implemented Salinity Control Programs to reduce costs of salinity, specifically from total dissolved solids in the Colorado River Basin. ADWR staff within the Colorado River Management (CRM) section contributed to (i) review of Paradox Valley Unit (PVU), Environmental Impact Assessment (EIS) as a

Reclamation co-operating agency; (ii) review and update of Salinity Economic Impact Model (SEIM) which estimates the annual quantified economic damages incurred in metropolitan and agricultural areas in the Lower Colorado River Basin (LCRB); (iii) review of Reclamation's Funding Opportunity Announcement (FOA) to support Upper Basin Salinity Control Programs as an Application Review Committee (ARC); and (iv) drafting the 2020 Triennial Review of Water Quality Standards for Salinity in the Colorado River System.

GLEN CANYON DAM ADAPTIVE MANAGEMENT PROGRAM

ADWR represents the State of Arizona in the Glen Canyon Dam Adaptive Management Program, which was established in 1997. As the Governor's representative, ADWR provides policy guidance and technical expertise to the Program while representing Arizona's interests. The Colorado River Management Section staff are active participants in the Program, attending Adaptive Management Work Group (AMWG) and Technical Work Group (TWG) meetings. In addition, staff participated in the Glen Canyon Dam monthly operational calls, as outlined in the Long-Term Experimental and Management Plan Record of Decision (LTEMP ROD). CRM staff has also participated in the process of crafting the Program's next Triennial Work Plan and budget for the fiscal year 2021-2023, through the Budget Ad Hoc Group (BAHG). Under the LTEMP ROD, several experimental operational releases were proposed, including the 'Bug Flows,' which consist of lower, steady weekend flows in order to promote aquatic food base and foster fish populations crucial to the integrity of the Colorado River ecosystem. In coordination with the Program, the Department of the Interior has moved forward in recommending the implementation of 'Bug Flows' for a third consecutive year in fiscal year 2020.

LOWER COLORADO RIVER MULTI-SPECIES CONSERVATION PROGRAM

The Lower Colorado River Multi-Species Conservation Program (MSCP) provides 50 years of environmental compliance coverage for diversions of Colorado River water, primarily through the implementation of a Habitat Conservation Plan. ADWR represents the State of Arizona on the MSCP's Steering Committee. In FY 2020, CRM staff compiled MSCP-covered activities implemented by ADWR's partners throughout 2019 and submitted a report to the Program. In FY 2020, ADWR's Colorado River Management Section manager was unanimously elected as the vice-chair of the MSCP Steering Committee.

STATEWIDE EFFORTS

DROUGHT PROGRAM



Arizona experienced two severe and sustained droughts in the first half of the 20th century, one in the 1900s, and one in the 1950s. Arizona is experiencing a third modern-era drought that began in the mid-1990s prompting a Drought Emergency Declaration, which has been in effect since 1996.

In 2003, a Governor's Drought Task Force was created to establish a flexible framework to refine Arizona's drought monitoring process, an understanding of drought impacts, and mechanisms for limiting future vulnerability. The Arizona Drought Preparedness Plan was developed and adopted in 2004 and established the Drought Monitoring Technical Committee (MTC), the Interagency Coordinating Group (ICG), and Local Drought Impact Groups (LDIGs).

ADWR's Drought Program provides drought resources to the public and facilitates the meetings and activities of the MTC and ICG. The MTC is responsible for gathering drought, climate and weather data, and preparing the short- and long-term drought status reports, which are disseminated to resource managers, decision-makers, and the public. Since 2006, the ICG has met biannually to advise the Governor on drought status, impacts, and necessary preparedness and response actions. Since its inception, the ICG has continued to recommend to the Governor to maintain the Drought Declaration currently in place. The Drought Program compiles all related drought activities and efforts in the Arizona Drought Preparedness Annual Report.

During FY 2020, the Drought Program Coordinator worked on increasing the MTC and ICG participation by soliciting additional partnerships with several state and federal agencies, tribes, and non-governmental organizations. Staff also attended the Southwest Drought & Health Workshop in February 2020 and connected with representatives of the Arizona Department of Health Services (ADHS) with the goal of incorporating more health-related information into the Drought Program resources. This in turn, also provided the opportunity for ADHS to receive and incorporate ADWR water use data into their website.

CONSERVATION PROGRAM

ADWR's Conservation Program offers conservation assistance, outreach, and education, as well as information on conservation resources and regulations. The program encourages and promotes the wise and efficient use of water through the development and distribution of conservation resources and tools. It provides water conservation assistance to individuals and communities, collaboration with regional and national conservation partners, and participation in outreach activities.

During FY 2020, the Conservation Coordinator updated and published the Phoenix AMA Low-Water-Use/Drought-Tolerant Plant List (LWUPL) for the Phoenix 4MP. The Pinal and Santa Cruz LWUPLs will be updated and published next. ADWR's LWUPL was developed by plant experts for each AMA to regulate the plants used in public medians and rights-of-ways to reduce groundwater use in the AMAs. Some jurisdictions adopt and incorporate these lists into ordinances and design guidelines for development. These lists also serve as a non-regulatory resource for residents and businesses interested in low-water-use landscapes.

Conservation and ITD staff have also been working to develop a LWUPL query that will initially be used internally to update plant information and easily locate plant characteristics. Phase two will expand the query's accessibility to external customers, allowing municipalities, HOAs, and the public to search for plants on the LWUPL according to desired characteristics.

ADWR CONSERVATION OUTREACH EVENTS DURING FY 2020

SCHOOL EVENTS:

- Camelview Elementary School
- Dobson High School Presentations
- Quail Run Elementary
- Peoria Water Festival - Project Wet

PUBLIC EVENTS:

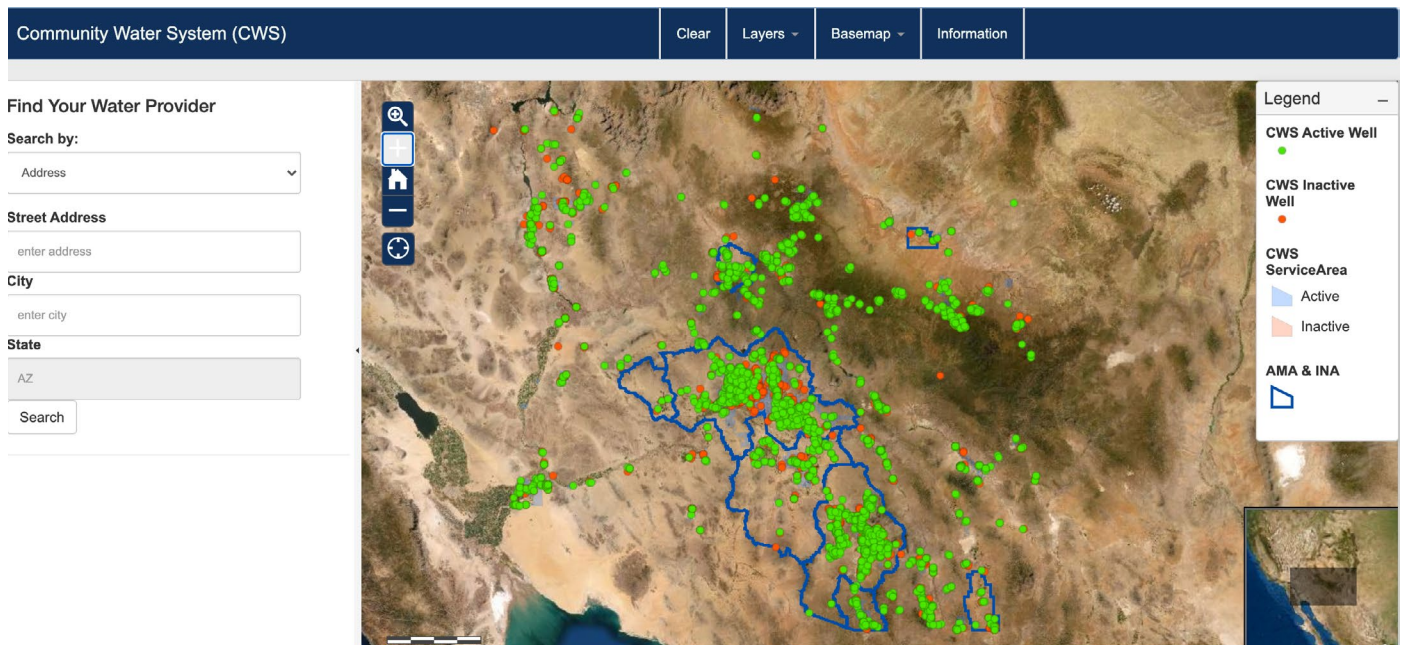
- Tres Rios Nature Festival
- SRP 13th Water Conservation Expo
- Central Arizona Conservation Alliance 4th Annual WinterFest
- Prescott AMA Water Summit
- STEAM Night



COMMUNITY WATER SYSTEM PROGRAM

The Community Water System (CWS) Program regulates water providers across the State that serve water to at least 15 service connections or 25 year-round residents. CWSs are required to submit a 5-year System Water Plan and an Annual Water Use report to ADWR. These reporting requirements were part of a larger set of recommendations made in 2004 by the Governor's Drought Task Force. Established by Executive Order 2003-12 on March 20, 2003, these requirements were intended to reduce water providers' vulnerability to drought and ensure that they are prepared to mitigate and respond to drought or water shortage conditions. ADWR assists water providers in meeting these requirements through web-based resources, online reporting tools, and phone or in-person consultations.

The data collected also provides a means for ADWR to gather water use data inside and outside AMAs to better plan for Arizona's water future. In FY 2020, in an effort to improve the CWS Program reporting process and ultimately the quality of data, the CWS Annual Water Use Online Reporting Tool was upgraded and simplified.



GROUNDWATER MANAGEMENT

AMAS & INAS

The 1980 Arizona Groundwater Management Act (GMA) recognized the need to provide long-term management and conservation of the State's finite groundwater resources to support the wellbeing and livelihood of Arizona's growing population. Areas with heavy reliance on groundwater were identified and designated as Active Management Areas (AMAs), in which the highest degree of groundwater regulation in the State is currently imposed. This includes prohibiting new irrigation acres, water conservation requirements and annual water-use reporting requirements. Irrigation Non-expansion Areas (INAs) were established in some rural farming areas where groundwater overdraft was less severe but still present.

The GMA established management goals for the AMAs that recognized the unique character of each AMA and its water users. In addition, the GMA requires ADWR to adopt and implement a series of five Management Plans, each unique to a particular AMA, between 1980 and 2025. The plans include mandatory conservation requirements for agricultural, municipal, and industrial water users that become progressively more rigorous with each plan.

The Statewide AMA Section is responsible for administering the GMA, and specifically the management of groundwater use and the enforcement of the GMA requirements within the AMAs and INAs. These activities include:

1. Managing and monitoring municipal, industrial and agricultural conservation programs;
2. Managing and administering the annual water-use reporting processes, which include processing, entering and analyzing over 6,000 annual water-use reports;
3. Providing customer service to individuals and entities on groundwater use and management;
4. Collaborating with stakeholders as well as presenting to various organizations and entities on groundwater management and use;
5. Addressing customer inquiries and clarifying groundwater rules and regulations.

MANAGEMENT PLANS EFFORTS

The fourth management period is defined in statute as 2010 through 2020, and the intent of the GMA was that each of the five management plans should be effective in the corresponding management period. After the 2008 recession, the management plans fell behind schedule. As of calendar-year 2019, only the Fourth Management Plans (4MPs) for the Prescott and Tucson AMAs had been adopted, and the Third Management Plans (3MPs) remained in effect for the Phoenix, Pinal, and Santa Cruz AMAs.

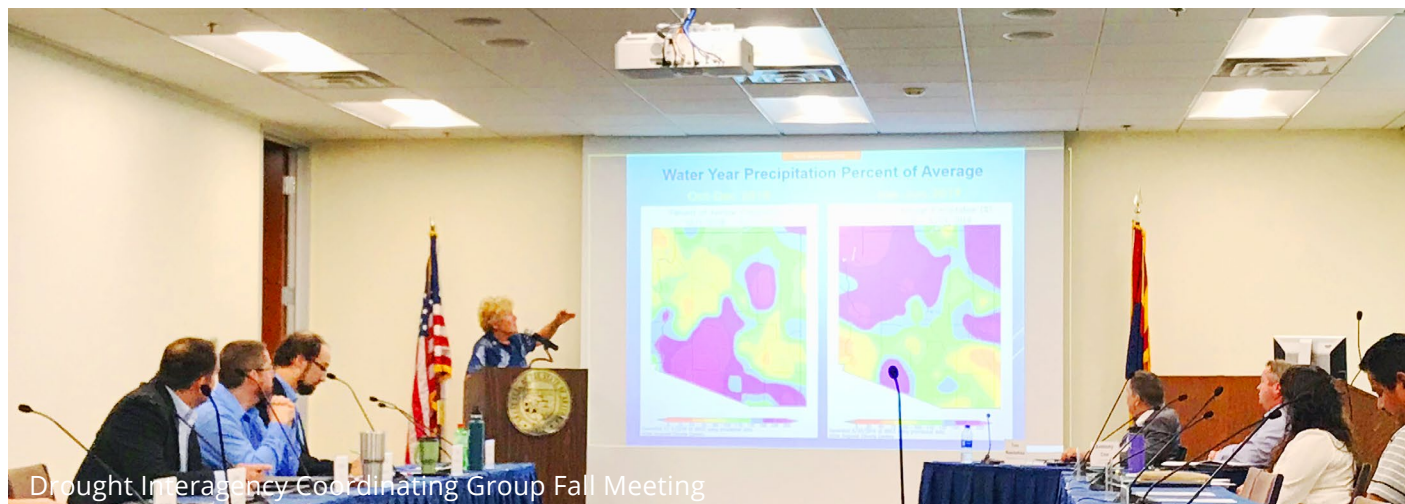
In 2019, ADWR created several positions dedicated to the management plans and set a goal of completing the remaining 4MPs by the end of 2020. Work toward this goal remains on track: the Phoenix AMA 4MP was adopted in March 2020, an initial draft Pinal AMA 4MP was published in March 2020, and an initial draft SCAMA 4MP is expected to be published in early summer 2020.

Concurrently, ADWR began the research and development needed for the Fifth Management Plans (5MPs) with the creation of the 5th Management Plans Work Group (MPWG). The MPWG is an ADWR-led stakeholder group focusing on analyses of the existing mandatory conservation programs and the development of updated and new conservation requirements in response to those analyses. The MPWG has created several subgroups to facilitate that analysis and development: Agricultural, Municipal, Safe-Yield Technical, and Turf subgroups will continue to meet through 2020. ADWR has a target of adopting the 5MPs in 2022, with those conservation programs going into effect on January 1, 2025.

ADDITIONAL AMA ACHIEVEMENTS DURING FY 2020

The AMA team in collaboration with ADWR's IT Division recreated the AMA Annual Water Use Online Reporting Tool in a way that is more user-friendly both for the public and staff. Information can be inputted easier and quicker, and the data reported is loaded directly to the ADWR database, eliminating the need for manual data entry, saving valuable staff time, and reducing human error.

The screenshot shows the '2019 ELECTRONIC ANNUAL REPORT PROCESS' web form. At the top, there is a navigation bar with four steps: 1. Basic Information, 2. Right Details, 3. Report Water Use, and 4. Confirm Information. The form itself is titled 'WELCOME TO THE ARIZONA DEPARTMENT OF WATER RESOURCES' and '2019 ELECTRONIC ANNUAL REPORT PROCESS'. It includes an 'Instructions' button. The form fields are: ADWR Right Number (Format XX-XXXXXX.XXXX), Email Address, Phone Number, Name of Person Filing Report, and Title of Person Filing Report. There are radio buttons for 'Water was used in 2019' (selected) and 'Water was NOT used in 2019'. A checkbox for 'I acknowledge that closing my browser without submitting my report will result in all entered data being lost.' is also present. At the bottom, there is a note: '*Annual Reports submitted electronically, by mail, or in person are due by Friday, May 29, 2020' and '*If the information is incorrect, contact ADWR by email or by phone using (602) 771-8585.' There are 'Go Back' and 'Next Step' buttons.



Drought Interagency Coordinating Group Fall Meeting

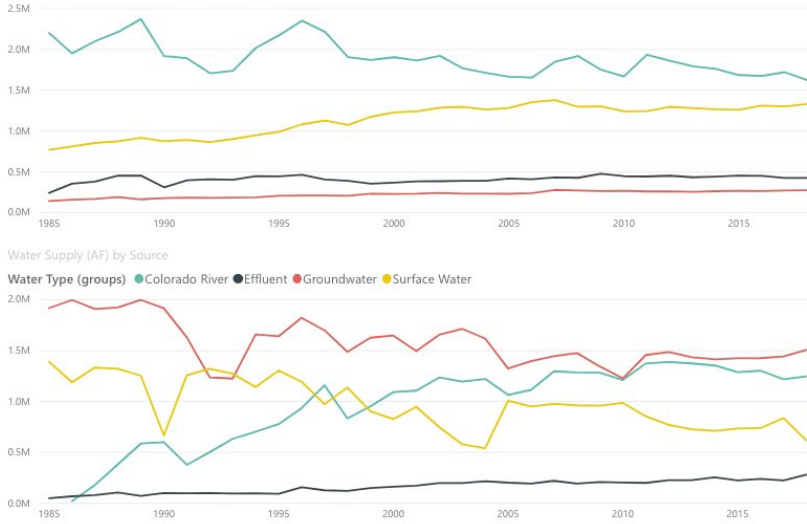
Conservation Grant, which allocated two million dollars to conserve groundwater in the AMAs. Work included soliciting, accepting and reviewing applications, as well as creating a new webpage for the Water Management Assistance Program, under which this grant is administered. Selected projects will be announced before the end of calendar year 2020.

Water Use in the Active Management Areas

Year: 2018 AMA: All Sector: All

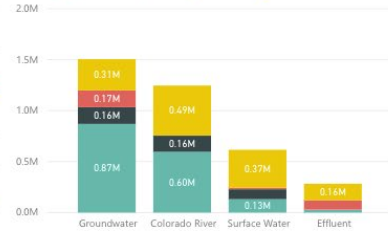
Water Demand (AF) by Sector

Sector: Agricultural Indian Industrial Municipal



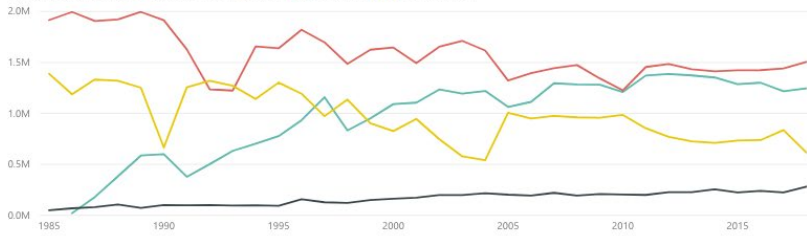
Single Year Breakdown of Water Demand by Type

Sector: Agricultural Indian Industrial Municipal



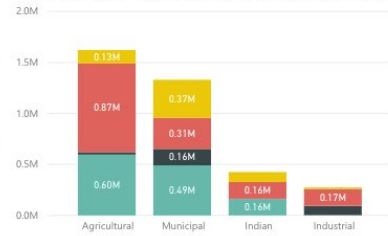
Water Supply (AF) by Source

Water Type (groups): Colorado River Effluent Groundwater Surface Water



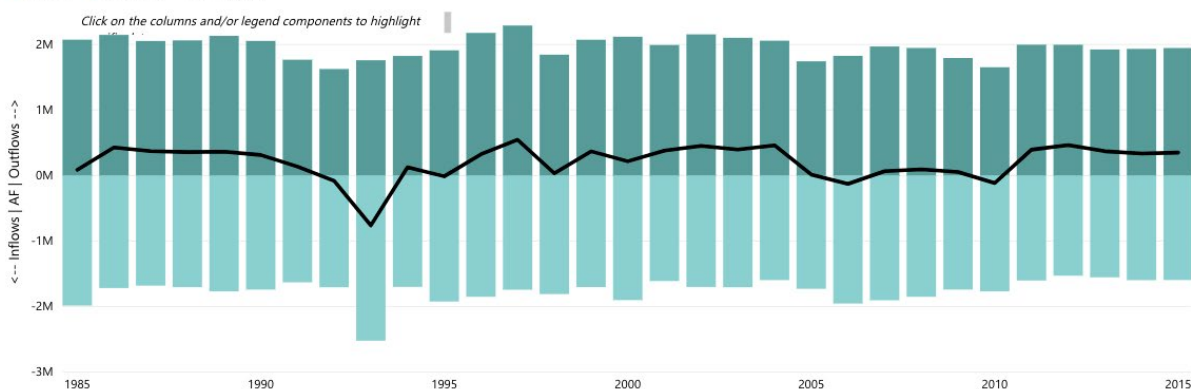
Single Year Breakdown of Water Supply by Sector

Water Type (groups): Colorado River Effluent Groundwater Surface Water



OVERDRAFT DASHBOARD

Inflow Outflow Overdraft



Safe-yield means a groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area. A.R.S. § 45-561(12)

Show Components

Hide Components

YEAR

1985

2015

AMA

- ☐ Phoenix
- ☐ Pinal
- ☐ Prescott
- ☐ Santa Cruz
- ☐ Tucson

Hold down "Ctrl" to select multiple

SAFE-YIELD INFLOWS:

Groundwater Inflow (Natural)
Streambed Recharge (Natural)
Mountain-front Recharge (Natural)
Agricultural Incidental Recharge (Artificial)
Municipal Incidental Recharge (Artificial)
Industrial Incidental Recharge (Artificial)
Canal Seepage (Artificial)
Cut to the Aquifer (Artificial)
CAGR Replenishment (Artificial)

SAFE-YIELD OUTFLOWS:

Groundwater Outflow (Natural)
Riparian Demand (Natural)
Agricultural Demand (Artificial)
Municipal Demand (Artificial)
Industrial Demand (Artificial)
Indian Demand (Artificial)



Last Updated: 06/05/2020

increase transparency and improve public access to ADWR data. The webpage currently includes two interactive dashboards. The first highlights AMA water use and supply data since 1985 that can be filtered by AMA, sector, and water source. The second dashboard portrays safe-yield information and can be filtered by AMA, sector, and safe-yield components.

To assist with the Phoenix AMA 4MP adoption, staff developed a Turf Allotment Calculator for golf courses in the Phoenix AMA, which will be duplicated for other AMAs. This tool reduces human error and inquiry response time from 5-30 minutes (depending on the facility's characteristics and staff experience) to an almost immediate result. The Calculator is automatically updated when new data is entered into the database and allows staff to explore different planning scenarios and corresponding allotments.

The COVID-19 pandemic and corresponding social distancing efforts impacted the AMA staff during the peak of the Annual Reporting Season, which is the busiest time of year for the Section. The team needed to adjust to new ways in which to assist customers during this busy season while dealing with the unique challenges this situation presented. Regardless of teleworking, staff was able to keep providing smooth and consistent customer service. Lastly, despite high staff turnover, annual report data entry is on par with the 2018 annual reporting year and double that of the 2017 annual reporting year.



Willow Beach on Lake Mohave and the Colorado River

SURFACE WATER

The Surface Water program, ADWR issues permits and certificates of surface water use within the State of Arizona, with the exception of the Lower Colorado River. The program also processes ownership transfers for rights and claims, maintains the surface-water right registry and other Departmental records, and provides technical assistance to private, State and Federal entities in surface water matters.

The following are noteworthy successes of ADWR's Surface Water program in FY 2020:

1. In FY 2020, ADWR issued certificates of water right to the Salt River Valley Water Users' Association for Roosevelt Lake, Canyon Lake, Apache Lake, Saguaro Lake, Horseshoe Reservoir and Bartlett Reservoir.
2. In FY 2020, ADWR approved Payson Water Company's application to sever and transfer surface water from C.C. Cragin Reservoir to the Mesa Del Caballo subdivision to help residents meet their water demands.
3. Using problem-solving methods under AMS, the unit, in coordination with the Adjudication Division, developed a flow process that ensures ADWR meets court deadlines established by the Special Master for the Adjudication proceedings.



GROUNDWATER PERMITTING & WELLS



The Groundwater Permitting and Wells Unit (Unit) processes groundwater withdrawal permit applications and notices of intention to drill, deepen, modify, replace or abandon a well (NOI) applications. In addition, the Unit processes all the after-filing documents that are received once a well has been drilled or abandoned, or if a change of well information is required. The Unit also administers well driller exams and issues well driller licenses. The Unit manages and maintains the registry of wells and groundwater withdrawal permits.

In FY 2020, the Groundwater Permitting and Wells Unit received and processed 3,268 NOI applications. The Unit has a customer service goal to maintain an

average of six calendar days or less to process NOIs. The Unit maintained an averaged 4.01 calendar days for the fiscal year.

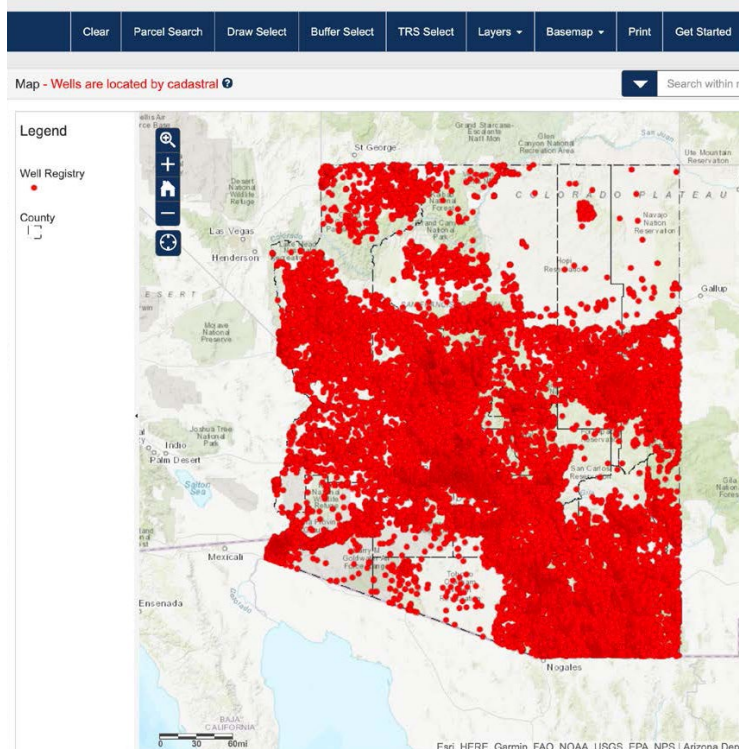
During the month of March 2020, most staff in the Groundwater Permitting and Wells Unit were teleworking due to COVID-19. During that month, the Unit received 468 NOI applications, the highest number of applications on any given year. Despite these hurdles, the Unit managed to maintain an average of 3.71 days to process an NOI.

In FY 2019, ADWR launched an online application for Arizona licensed well drillers to file their Well Drillers Logs and Reports. Thirty-five percent of the Well Drillers Logs and Reports were filed online, and sixty-five percent of the Well Drillers Logs and Reports were submitted directly to the Department in paper form.

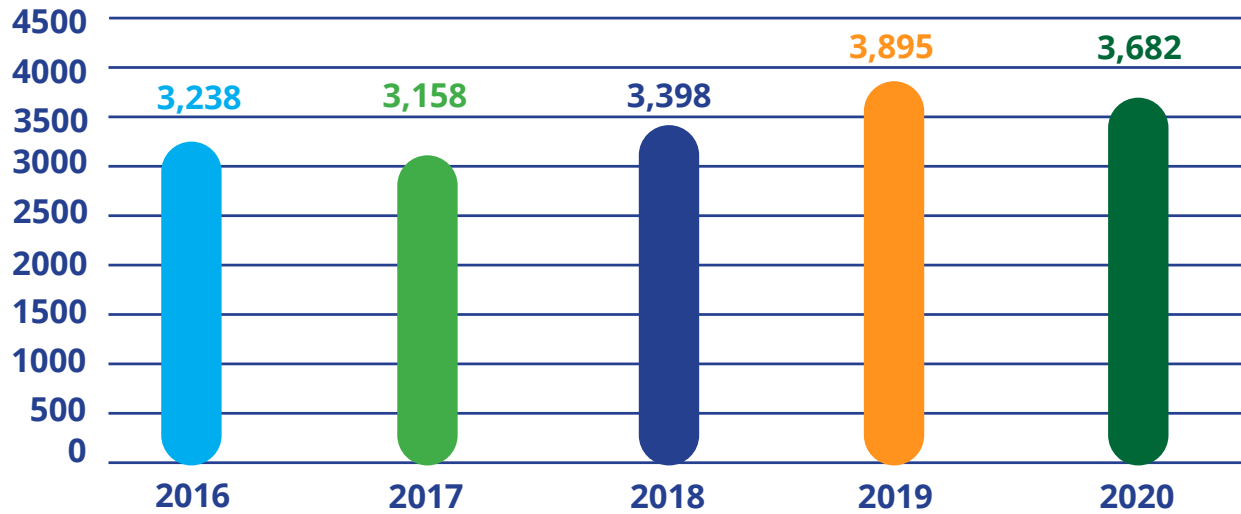
The Unit issued over 80 notices to licensed well drillers to whom a drilling authority had been issued reminding them of the requirement to file a Well Drillers Log and Report after drilling the well. Over a thousand well applications were associated with the notices.

The Unit also processed nearly 13,000 after-filing documents which include Change of Well Ownership forms, Project Completion Reports and Well Abandonment Reports. Once all these documents are processed, the documents are scanned to imaged records for immediate public access.

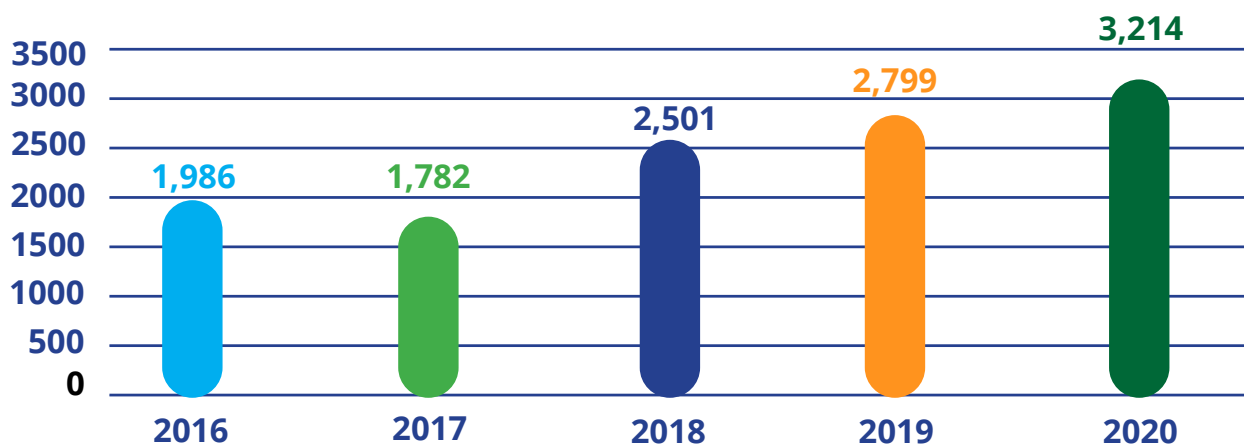
Registry of Wells in Arizona (Wells 55)



NOTICE OF INTENTION APPLICATIONS



WELL DRILLERS LOGS AND REPORTS



"ARIZONA HAS CREATED A ROBUST WATER MANAGEMENT STRUCTURE TO MAXIMIZE ITS RESOURCES AND TO CREATE AND CONTROL ITS OWN DESTINY TO THE MAXIMUM EXTENT POSSIBLE."

TOM BUSCHATZKE - 2017



ASSURED & ADEQUATE WATER SUPPLY

ADWR's Assured and Adequate Water Supply Program administers the assured water supply requirements within the State's five AMAs and the adequate water supply requirements outside of the AMAs. These requirements are designed to provide consumer protection for buyers of homes in new subdivisions within the State.

Arizona's Assured Water Supply program is designed to preserve groundwater resources and promote long term water supply planning. Established by the Groundwater Management Code of 1980, the Assured Water Supply Program requires that new developments and designated providers within Active Management Areas must demonstrate an assured water supply. In areas outside AMAs, the Adequate Water Supply Program requires developers to either demonstrate an adequate supply or disclose an inadequate supply to potential buyers prior to sale. Rules associated with the programs encourage the use of renewable supplies, such as reclaimed water, surface water, or Colorado River water delivered via the Central Arizona Project.

The assured water supply requirements, which were established as part of the 1980 Groundwater Management Act, mandate that developers of new subdivisions in AMAs demonstrate to ADWR that there is a 100-year assured water supply for their subdivision before obtaining plat approval or selling lots. A developer can comply with this requirement by demonstrating that the water supply for the subdivision meets the criteria in ADWR's rules for a 100-year assured water supply. In turn, this would result in ADWR issuing a Certificate of Assured Water Supply for the subdivision, or by obtaining a commitment of water service from a water provider that has been designated by ADWR as having a 100-year assured water supply.

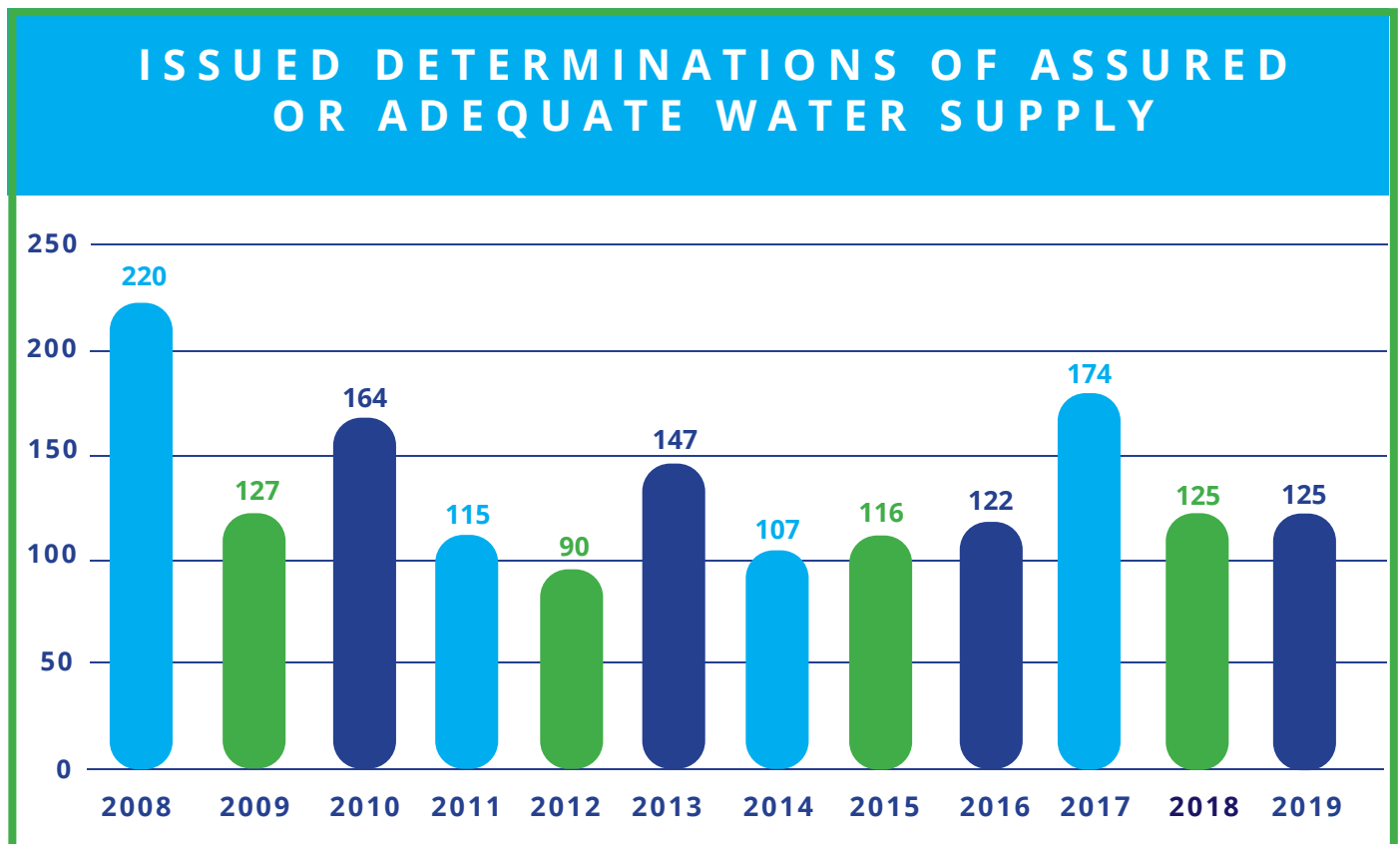
One of the requirements for demonstrating an assured water supply is that any groundwater use by the subdivision or water provider must be consistent with the AMA's management goal. This requirement is designed to preserve groundwater supplies in the AMAs by requiring new subdivisions to rely primarily on renewable supplies, such as Central Arizona Project water, effluent or surface water. In the Phoenix, Pinal and Tucson AMAs, a subdivision or water provider can meet this requirement by becoming a member of the Central Arizona Groundwater Replenishment District, which replenishes groundwater used by its members with renewable water supplies.

The adequate water supply requirements mandate that developers of new subdivisions outside of AMAs apply for and obtain a water report from ADWR determining whether there is a 100-year adequate water supply for the subdivision and disclose the report to prospective buyers or obtain a commitment of water service from a water provider designated by ADWR as having an adequate water supply. In most areas outside of AMAs, there is no requirement that the developer demonstrate that a 100-year adequate water supply exists for the subdivision before obtaining plat approval or selling lots. However, as a result of legislation enacted by the Arizona Legislature in 2007, cities, towns and counties outside of AMAs are authorized to enact an ordinance requiring that developers of new subdivisions demonstrate to ADWR that there is a 100-year adequate water supply for the subdivision. Another option is to obtain a commitment of water service from a water provider that has been designated by ADWR as having a 100-year adequate water supply before obtaining plat approval or selling lots. Some local jurisdictions, including Cochise County, Yuma County, Clarkdale and Patagonia, require a 100-year water adequacy determination from ADWR before completing the

final plat approval process. Unlike the assured water supply program, the adequate water supply program does not require the use of renewable water supplies or replenishment of groundwater use by new subdivisions.

FY 2020 continued to be a very active year in the Assured and Adequate Water Supply Program. The staff hosted 46 pre-application meetings with potential applicants. During the fiscal year, 125 determinations were issued. Those issued determinations included 31 Certificates of Assured Water Supply, six Water Reports, with 79 total conveyances of Certificates of Assured Water Supply. Four new Analyses of Assured Water Supply, extensions to five existing Analyses of Assured Water Supply and one new Physical Availability Determination were issued. Additionally, one Decision and Order for a Designation of Assured Water Supply was issued. In terms of the impact on growth to the State, these determinations represent the potential for over 110,000 homes in 120 subdivisions to be constructed throughout the State.

The Assured Water Supply team also processed 13 new applications for extinguishment credits and 52 applications for conveyance of existing credits. Extinguishment credits are issued by ADWR for the extinguishment of grandfathered groundwater rights in an AMA. The credits help developers and designated providers meet the consistency with management goal requirement by providing a volume of groundwater that may be pumped consistent with the AMA's management goal. Staff processed applications that resulted in extinguishing grandfathered groundwater rights on 612 acres in exchange for 5,091 credits. In all, 12,979 of these credits were pledged to Assured Water Supply determinations to help meet the consistency with management goal requirement.



UNDERGROUND WATER STORAGE, SAVINGS & REPLENISHMENT PROGRAM

The Underground Water Storage, Savings, & Replenishment (Recharge) Program promotes the use of renewable water supplies, particularly Arizona's entitlement to Colorado River water, while preserving groundwater through a flexible and effective regulatory program for the underground storage, savings and replenishment of water. The goals of the Recharge Program are to promote the use of renewable supplies; to augment the water supply; to help reduce groundwater overdraft; to provide for the efficient use of all water resources by allowing water to be "transported" by storing water in one location but recovering a like quantity elsewhere; and, to accommodate seasonal demand for water through recharge and recovery.

PERMITS AND TOTALS

The Recharge team issued the following Underground Storage Facility (USF), Water Storage (WS), Groundwater Savings Facility (GSF) and Recovery Well (RW) permits in FY 2020:



New USF permits were issued for an 22,676.8 acre-foot per year increase in storage capacity



USF permits were modified or renewed this fiscal year



Recovery Well (RW) permits were issued or modified this fiscal year



WS permits were issued, modified or renewed this fiscal year



GSF permits were renewed

Total reported volume of water delivered for storage in reporting year 2019.

- Delivered 722,000 acre-feet of renewable water supplies to active facilities

LONG-TERM STORAGE CREDITS

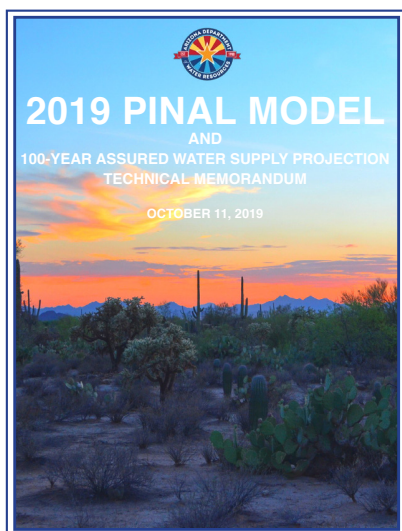
- 153 long-term storage accounts were updated and certified in FY 2020;
- These accounts hold long-term storage credit (LTSC) balances ranging from a few credits to over a million credits, with over 12 million acre-feet of credits stored throughout the four AMAs;
- A total of 76 long-term storage credit transfers were processed in FY 2020;
- Review of FY 2019 Annual Report data and calculation of LTSCs in the Phoenix, Pinal and Tucson AMAs was completed for the Arizona Water Banking Authority by the deadline of June 30, 2020.

RECOVERED WATER

A Recovery Well (RW) Permit allows the permit holder to recover long-term storage credits or recover stored water annually. A total of 12 RW permits, comprising 138 wells, were issued or modified in FY 2020.



HYDROLOGY



The Hydrology Division collects and analyzes statewide water resources data, maintains a groundwater database, and develops and updates groundwater models. The Hydrology Division consists of two sections: Groundwater Modeling and Field Services.

GROUNDWATER MODELING

The primary responsibility of the Groundwater Modeling Section is to develop, update, and document regional groundwater flow models within the five AMAs and other selected areas in the State. ADWR uses regional groundwater flow models to evaluate current conditions and simulate possible future scenarios. ADWR groundwater models are important tools used internally and by outside parties in support of water management policies and decisions.

Also, the Groundwater Modeling staff review hydrologic studies and groundwater flow models produced by others outside of ADWR on behalf of other ADWR programs, support other programs at ADWR, and perform geographic information systems (GIS) analysis of hydrologic data.

HIGHLIGHTS

1. Prepared and published the Pinal AMA Groundwater Model Update.
2. Prepared and delivered several presentations to stakeholder groups, committees, and the public on the Pinal Groundwater Model Update and results.
3. Prepared and published the Buckeye Water Logged Area (BWLA) review report, including the BWLA groundwater model.
4. Prepared and delivered presentations on groundwater conditions to the La Paz County West Basins Water Users Study Committee and the Mohave County West Basins Water Users Study Committee.
5. Initiated development of a groundwater model update for the Upper San Pedro basin and completed the interpretation of the model geology.
6. Participated in the Willcox Water Project Seminars and presented results of the Willcox Groundwater Model to the local citizens.
7. Increased the number of technical staff in the Groundwater Modeling Unit.
8. Developing a comprehensive groundwater model for the Santa Cruz AMA that combines three models covering separate regions.

FIELD SERVICES



The Field Services Section's main responsibilities include collecting, analyzing and interpreting hydrologic data. Field Services also prepares and publishes numerous reports and maps based on the data and information collected in the field. Field Services is comprised of the Basic Data Unit, Automated Groundwater Monitoring Unit and the Geophysics/Surveying Unit.

Basic Data staff collect groundwater-level data from wells and conduct well inventories throughout the State. They also collect stream flow and discharge data. Collected data is recorded and found on-line in the Department's Groundwater Site Inventory (GWSI) database, which is maintained by Field Services staff.

The Automated Groundwater Monitoring Unit deploys and maintains automated groundwater monitoring devices in wells that record water levels on a predefined frequency on a continuous basis. Some

of these wells are equipped with telemetry systems that transmit real-time data to ADWR via satellite.

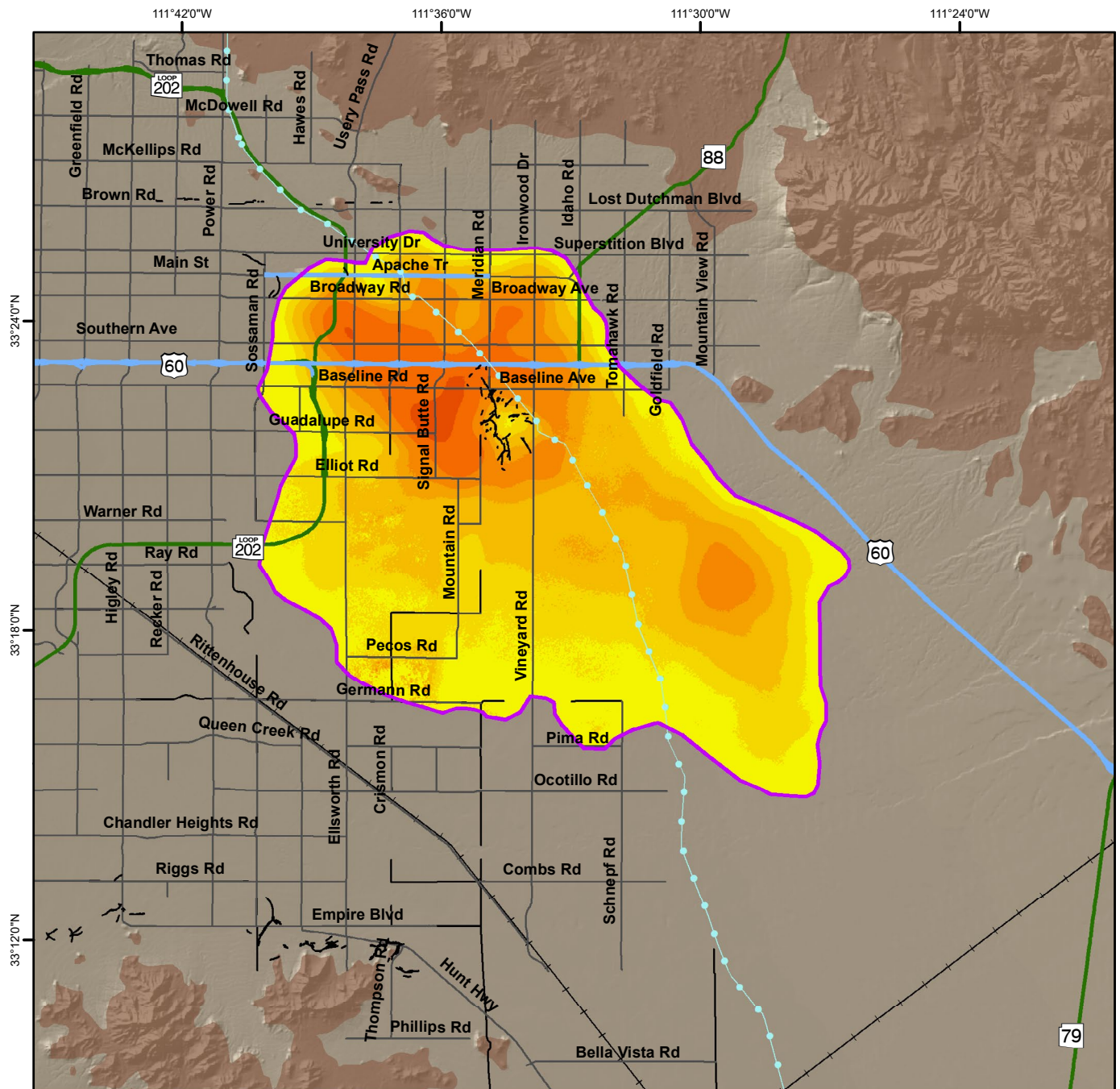
The Geophysics/Surveying Unit collects and processes data and interprets land subsidence and aquifer storage in order to better manage the State's water resources.



HIGHLIGHTS

1. Drafted and published three Statewide Water Level Change reports for Water Years 2014, 2015, and 2017; see Hydrology eLibrary Open File Reports (OFR). Currently working on three other hydrology data reports to be completed in 2020.
2. Prepared quarterly reports for Drought Monitoring Technical Committee, reporting on drought index wells and provided hydrologic contribution to Governor's Arizona Drought Annual Preparedness Report.
3. Continued to reduce the number of "unable to measure" (UTM) water levels at index wells as part of AMS.
4. Completed LOGs Oracle database front end for data entry portion of ADWR's new On-Line Drillers Log Application and National Groundwater Monitoring Network (NGWMN) hydrologic analysis. Continued two-year grant work with the U.S. Geological Survey (USGS) as a contributor to the NGWMN.

5. Completed inventory of wells reported by drillers via new On-Line Driller's Well Report web application. Completed QA report of driller sourced Well Log data reported via new On-Line Driller's Well web application.
6. Completed basin sweeps in Gila Bend Basin and Lower Gila Basin, collecting over 318 depth to water measurements. Collected over 926 water-level measurements during basin sweep in the Tucson and Santa Cruz AMA and Cienaga Creek/San Raphael groundwater basins.
7. Conducted over 2076 water-level measurements at over 1,800 index wells across the State.
8. Completed GWSI updated data download file that contains statewide GWSI water-level data for release to the public.
9. Completed update of GWSI User Guide and added to ADWR Knowledge Base.
10. In cooperation with other ADWR staff, field staff continue to work identifying, reporting, notifying, and capping open (uncapped) wells within the State. Staff temporarily capped 29 and permanently capped 13 open wells.
11. Continued to support development and conduct testing of IT projects including the AZ Wells Hub and Online Drillers Log. Completed numerous enhancements and functionality improvements to GWSI.
12. Worked with 3rd Party Water Level Portal entities to add over 710 water levels to GWSI.
13. Completed standard operations and maintenance site visits at all 130 well sites with automated monitoring equipment three times each this fiscal year. Collected and uploaded into GWSI over 100,700 daily water levels from automated monitoring sites.
14. Repaired automated monitoring device equipment at 39 sites statewide.
15. Installed one site, (re)installed one site and removed 5 sites at well owner request.
16. Drafted and published Pinal AMA Gravity Project Change in Storage 1999 - 2019 report.
17. Published 50 new land-subsidence maps, bringing the total number of maps available in ADWR's Hydrology eLibrary to more than 550 land subsidence maps (see image right).



Total Land Subsidence in the Hawk Rock Area, Maricopa and Pinal Counties
Based on Radarsat-2 Satellite Interferometric Synthetic Aperture Radar (InSAR) Data
Time Period of Analysis: 10.0 Years 05/15/2010 To 04/16/2020

© MDA 2010 - 2020

Explanation

05/15/2010 To 03/29/2019

Total Land Subsidence

Decorrelation/No Data
Greater 40 cm (15.7 in)
25 - 40 cm (9.8 - 15.7 in)
15 - 25 cm (5.9 - 9.8 in)
10 - 15 cm (3.9 - 5.9 in)
6 - 10 cm (2.4 - 3.9 in)
4 - 6 cm (1.6 - 2.4 in)
2 - 4 cm (0.8 - 1.6 in)
1 - 2 cm (0.4 - 0.8 in)
0 - 1 cm (0 - 0.4 in)

Subsidence Feature

Hardrock

Earth Fissures

CAP Canal

Highways and Interstates

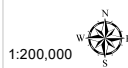
Interstate

US

State

Roads

Railway



1:200,000

0 1 2 4 6 8 Miles

Decorrelation (white areas) are areas where the phase of the received satellite signal changed between satellite passes, causing the data to be unusable. This occurs in areas where the land surface has been disturbed (i.e. bodies of water, snow, agriculture areas, areas of development, etc).

Earth fissures were mapped by the Arizona Geological Survey. For information on earth fissures visit: www.azgs.gov/EFEC

Coordinate System: NAD 1983 UTM Zone 12N
Projection: Transverse Mercator
Datum: North American 1983
Units: Meter
Created: 4/29/2020



ENGINEERING

The Engineering Section manages floodplains and jurisdictional dams in the state to reduce the risk of loss of life and property resulting from flooding or dam failure. The Engineering Section consists of two programs – Flood Warning and Floodplain Management, and Dam Safety.



DAM SAFETY

The mission of the Dam Safety Program is to maximize protection of human life and property against dam failure by ensuring the safety of jurisdictional dams in Arizona (250+ dams) through reviewing and approving permits for construction of new dams and repairs to existing dams, inspecting dams and working with dam owners to remediate safety deficiencies.

HIGHLIGHTS

1. **Focus on High Hazard Potential Dams with Safety Deficiencies:** The Dam Safety Section focused on identifying and prioritizing high hazard potential with identified safety deficiencies. This was accomplished through a qualitative risk-based assessment using existing information on the safety condition of each dam and the downstream persons at risk. Discussions are currently underway with the owners of 3 unsafe dams on the next steps to analyze the conditions at their dams, and on corrective actions to address the safety deficiencies at these structures.

As part of this focus on high hazard dams with safety deficiencies, the Department provided the City of Safford with a grant to hire an engineering consultant to evaluate Frye Mesa Dam in Graham County. The Department had classified the dam as “unsafe” due to concerns related to overtopping and stability during extreme flood and seismic events. The engineering analyses by the engineering consultant demonstrated that the dam would be stable under these extreme conditions. As a result, the Department removed the “unsafe” classification from this dam.

2. Inspections: The dam engineering community recognizes safety inspections by knowledgeable and experienced individuals are key tools in identifying and managing risk associated with dams, particularly at a time when aging infrastructure is a known problem in Arizona and across the country.

During FY 2020, ADWR staff inspected all of the 108 high hazard potential dams under ADWR’s jurisdiction. The use of the Huddle Board and the Daily Huddles – which continued during the enhanced telework due to the COVID-19 pandemic - was instrumental in staff achieving this goal. Monthly targets for inspections were established at the start of the year and then monitored in an easy-to-read visual format. This process allowed for early identification and addressing potential problems that developed during the course of the year.

The dam safety inspections also allowed staff to identify safety deficiencies at dams. This information was key to developing a strategic plan to address high hazard potential dams with safety deficiencies.

3. Staff Training: Technical training is vitally important so that staff keeps abreast with technical and regulatory developments in the field of dam engineering. Furthermore, the Annual State Employee Survey identified staff training opportunities as an issue that required attention. As a result, the Dam Safety Section continues to focus on increasing opportunities for technical training opportunities for staff. The Huddle Board includes a section where staff can identify training opportunities, and allows the supervisor to easily note the distribution of these training opportunities amongst staff. A grant from FEMA and the National Dam Safety Board provided for this training. Staff participated in the following key training sessions related to Dam Safety:

- Annual Conference of the Association of State Dam Safety Officials (ASDSO) in Orlando, Florida
- Fundamentals of Reinforced Concrete Design for Hydraulic Structures, organized by ASDSO
- Stability Analysis for Embankment Dams, sponsored by ASDSO

4. Staff Development: As the Dam Safety Section continues to improve performance ongoing efforts are made within organizations to improve the performance and self-fulfillment of their employees through a variety of educational methods and programs.

- Staff participated and benefited from the regular in-house training sessions on various elements of the Arizona Management System (AMS). Examples of these sessions are; Communication and Meetings, Visual Management, Leadership Behaviors, Mission Functions and Metrics, Standard Work, Digital 5S, and Problem Solving
- Staff developed Standard Work for processing dam safety records as they are received in the Agency. A process flow chart has been created and instructions on how to upload the information into ADWR's Docushare database are being implemented. An internet strategy was developed for processing documents during enhanced telework due to the COVID-19 pandemic.
- Staff is using the Digital 5S process to organize electronic files. Staff completed Step 3 (Sort), Step 4 (Standardize), and Step 5 (Straighten – File Plan) for the ADWR Records Management process. Staff is currently working to finalize Step 6 (Straighten – Clean-Up Plan). Also, staff has developed a Python Script and Executable to develop a complete file list and randomly sample the file list to audit files as a part of Step 8 (Sustain).

5. Dam Safety Applications: Staff continues to work with dam owners seeking to construct new dams or seeking to repair/modify existing jurisdictional dams.

- Pre-application reviews allow Department staff and the dam owners and their engineering consultants to interact early in the design phase so that both parties develop a good understanding of the project requirements and constraints. Staff is involved in pre-application reviews for McMicken Dam, Powerline Flood Retarding Structure (FRS), Vineyard FRS, and Buckeye FRS No. 1.
- Staff reviewed and approved the application to modify Cave Buttes Dam. The review process was completed with Licensing Timeframes in State Statutes.
- Staff reviewed construction completion documents for White Tanks FRS No. 4. The construction project successfully addressed safety deficiencies associated with the deteriorated or obstructed outlet works, the deteriorated or obstructed emergency spillways, and embankment cracking. The dam no longer has safety deficiencies and a new license has been issued.

FLOOD WARNING & FLOODPLAIN MANAGEMENT

Flood Warning and Floodplain Management programs reduce risk to life and property by assisting local flood control and floodplain management efforts. The Flood Warning program coordinates with local communities, and state and federal agencies for the planning, design, construction and operation of flood warning systems. In addition, it operates and maintains field equipment, and hosts the statewide flood warning website (afws.org). The Floodplain Management program coordinates the National Flood Insurance Program (NFIP) in Arizona, assists local communities participating in the NFIP through the implementation of the federally funded Community Assistance and cooperating Technical Partners programs, and publishes state criteria for floodplain delineations at the local level.

HIGHLIGHTS

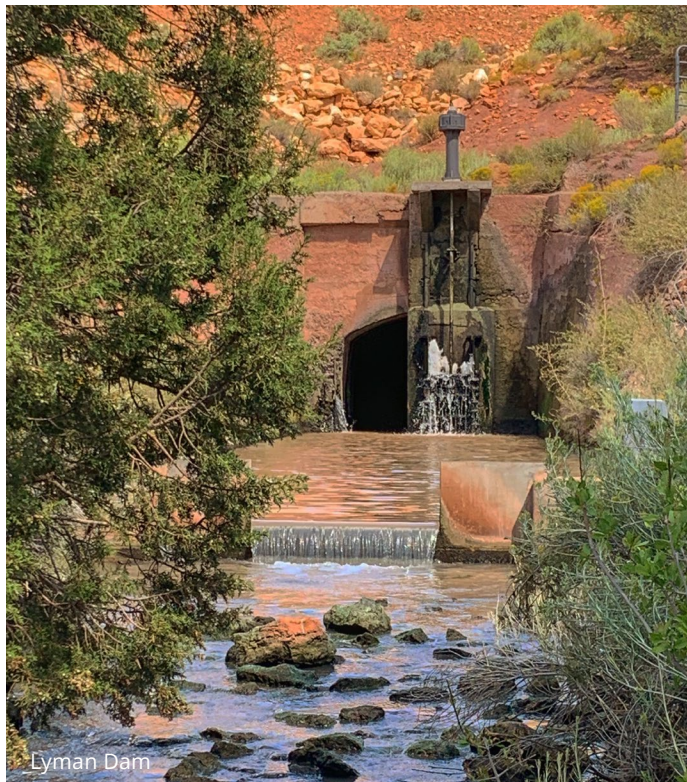
ADWR received two grants from the Federal Emergency Management Agency:

1. A Community Assistance Program – State Support Services Element (CAP-SSSE) grant with a budget of approximately \$155,000, and
2. A Cooperating Technical Partners (CTP) grant of over \$135,000.

Together, these grants support 2.5 staff members in the Floodplain Management program. Both grants have primary objectives to assist local communities in Arizona with their floodplain management programs, and for ADWR to serve as a liaison between these local communities and FEMA.

1. Staff led Community Assistance Visits (CAVs) and Community Assistance Contacts (CACs) with 15 NFIP communities in the State. These community contacts allow ADWR staff to interact with floodplain management staff from the local communities, provide communities with the latest information on the NFIP and audit communities' floodplain management program. They also provide the communities with information on available funding and training opportunities at the State and Federal levels.
2. Staff conducted two training workshops on key elements of the NFIP. These workshops are well-attended, and the audience typically includes local floodplain administrators, community building officials, consultants, and registered land surveyors.
3. Staff provided General Technical Assistance (GTA) related to floodplain management to several communities including Apache County, City of Buckeye, Town of Carefree, City of Casa Grande, City of Chandler, Town of Clifton, Cochise County, Coconino County, City of El Mirage, City of Flagstaff, Town of Gila Bend, City of Globe, City of Goodyear, Graham County, LaPaz County, City of Litchfield Park, Town of Marana, Maricopa County, Mohave County, Navajo County, Town of Paradise Valley, Town of Parker, Town of Patagonia, City of Peoria, City of Phoenix, Pima County, Pinal County, Town of Prescott Valley, City of Prescott, Town of Sahuarita, Santa Cruz County, City of Scottsdale, City of Sedona, City of Show Low, Town of Springerville, City of St. Johns, Town of Star Valley, City of Tolleson, City of Tucson, Town of Tusayan, Town of Wellton, and Yavapai County.
4. As the lead State agency providing flood warning services in Arizona. Staff chaired the bi-annual Arizona Flood Warning System (AFWS) Multi-Agency Task Force (MATF) group meetings. The MATF includes staff from local, State and Federal agencies involved in flood warning activities. The purpose of the meetings is to share flood warning information and to retain coordination among agencies.
5. ADWR staff assisted the Arizona Department of Emergency and Military Affairs (DEMA) by serving on the Hazard Mitigation Grant Program's Review and Ranking Panel to review grant applications submitted by various stakeholders. This panel reviews proposals by communities for the FEMA grants under Pre-Disaster Mitigation, Flood Mitigation Assistance, Hazard Mitigation Grant, and Hazard Mitigation Grant Program - Post Fire programs.

6. Staff participated in three Consultation Coordination Officer Meetings (CCO) - one each with Maricopa County, Mohave County, Yavapai County. These outreach meetings are organized in advance of changes to the regional flood insurance rate maps and are intended to inform local officials and the general public of the changes in the floodplain maps and to provide an overview of the map adoption process.



REGIONAL PLANNING

RURAL WATER STUDIES



The Rural Programs Unit of ADWR's Statewide Planning Section provides resources to areas of the State located outside of AMAs. This section carries on work initiated as part of the 1999 Rural Watershed Initiative, providing citizen organizations and local governments with technical information, administrative support, and advice on water issues.

ADWR's regional planning activities in FY 2020 included data collection and technical studies of specific areas throughout the State. These activities were conducted by ADWR and by the United States Geological Survey (USGS) through contractual agreements.

ADWR has provided funding to the USGS for FY 2020 for the following:

- Hydrologic data collection in support of analysis of the hydrologic system of the Middle Verde River watershed
- Streamflow gaging station funding for the Santa Cruz River near Lochiel
- Irrigation field verification in the Butler Valley, Hualapai/Sacramento, Lower San Pedro, Ranegras, and Willcox groundwater basins; and Harquahala INA
- Statewide water use information compilation

The Arizona Legislature has annually provided funding to ADWR for Rural Water Studies since FY 2000. In recent years, those funds have been used for a variety of hydrogeologic monitoring purposes in rural areas, to support local water demand and supply studies, augmentation feasibility studies, and water loss technical assistance programs to help water systems determine sources of water losses and the anticipated cost to reduce those losses. This funding also supports personnel and water resources data collection and investigations assisting rural communities with long-term planning and management programs. These data collection efforts directly support the expanded monitoring strategy identified in Arizona's Strategic Vision for Water Supply Sustainability and provide a science-based foundation for water management policies and decisions.



ADWR actively participates with rural water groups including rural watershed partnerships, municipal water users, and other entities that represent water interests within Arizona. ADWR provides technical support, policy information, and assistance as requested to these groups and attends multiple meetings per month with the associated governing bodies, executive committees, and technical advisory committees. In FY 2020 ADWR provided a letter of funding support for a Bureau of Reclamation Applied Science grant for the successful grantee (Upper San Pedro Partnership) to develop a Web-based Hydrologic Information Portal for the Upper San Pedro Basin.



TRIBAL WATER SETTLEMENT NEGOTIATIONS

ADWR represents the State of Arizona in negotiations for the settlement of tribal water rights claims. Eleven of Arizona's 22 federally recognized Indian tribes have outstanding water rights claims. Resolution of these claims through settlement rather than litigation is a priority for the State of Arizona. Settlement avoids the significant costs associated with litigation and generally results in benefits for both tribal and non-tribal water users, including greater certainty regarding available water supplies.

During FY 2020, the following tribal settlement activities occurred:

HAVASUPAI TRIBE

On February 21, 2020, Director Buschatzke and ADWR's Chief Counsel visited the Havasupai Reservation and met with the Havasupai Tribal Council to discuss initiating discussions between the Tribe, ADWR, the United States and State water users on a settlement of the Tribe's water rights claims. ADWR anticipates that settlement discussions will occur in the next fiscal year. Those settlement discussions will be confidential.

HUALAPAI TRIBE

The Bill Williams River Water Rights Settlement Act of 2014 approved a settlement of the Hualapai Tribe's water rights claims in the Bill Williams River Watershed, south of the Tribe's main reservation, between the Tribe, the United States and Freeport Minerals Corporation ("Freeport"). The settlement did not settle the Tribe's other water rights claims in the state, including its claims to groundwater and Colorado River water for its main reservation.

In FY 2019, the Hualapai Tribe, the State of Arizona, the Central Arizona Water Conservation District, the Salt River Project and Freeport signed a comprehensive settlement agreement settling all the Tribe's water rights claims in Arizona. Federal legislation approving the settlement was introduced in Congress on May 1, 2019. On June 26, 2019, Director Buschatzke testified in support of the settlement before the U.S. House Subcommittee on Water, Oceans, and Wildlife. The legislation is currently pending in Congress. ADWR will continue to provide support for this proposed settlement.

NAVAJO NATION AND HOPI TRIBE

On May 11, 2020, ADWR participated in a meeting with representatives of the Navajo Nation, the Hopi Tribe, the United States and a number of non-tribal State water users to discuss re-initiating discussions between the parties for a settlement of the tribes' water rights claims. Negotiations for a settlement of the tribes' claims with all the parties last occurred in 2012. ADWR anticipates that settlement discussions with all the parties will be ongoing during the next fiscal year. Those settlement discussions will be confidential.

TOHONO O'ODHAM NATION

Federal legislation enacted in 1982, 1986 and 2004 settled the Tohono O'odham Nation's water rights claims for some, but not all, of the Nation's lands. Discussions to settle the Nation's remaining water rights claims, including claims for its Sif Oidak District, occurred in 2010, but did not result in a settlement. Settlement discussions with the Nation were re-initiated during FY 2020. The settlement discussions include the Nation, the United States, ADWR and non-tribal State water users. These settlement discussions will continue during the next fiscal year and will be confidential.

TONTO APACHE TRIBE

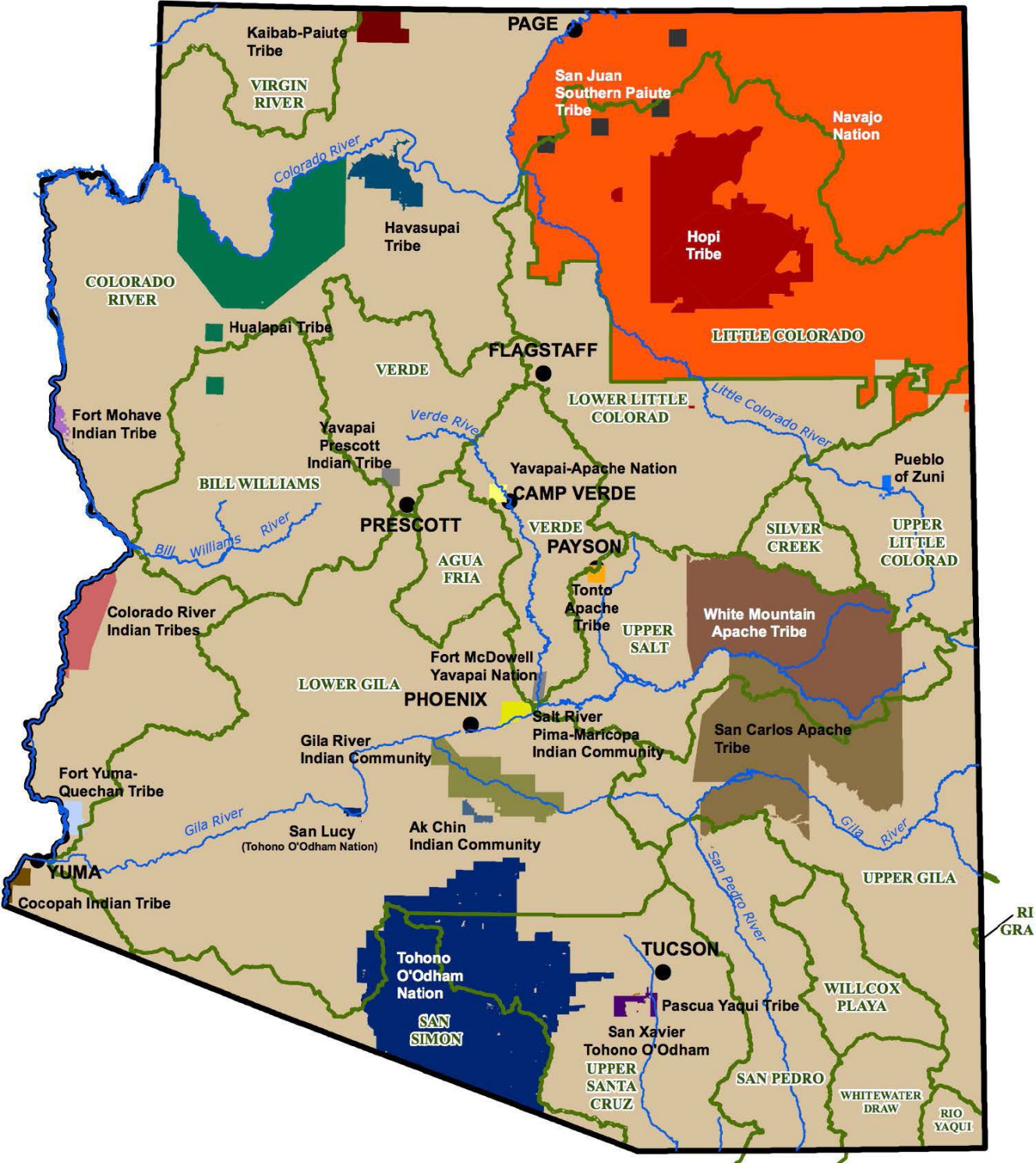
During FY 2020, ADWR attended meetings with representatives of the Tonto Apache Tribe, the United States and Salt River Project to discuss settlement of the Tribe's water rights claims. Before FY 2020, ADWR last participated in settlement discussions with the Tribe in 2014. ADWR anticipates that the settlement discussions will continue during the next fiscal year and that the settlement discussions will also include the Town of Payson. The settlement discussions will be confidential.

WHITE MOUNTAIN APACHE TRIBE

The White Mountain Apache Tribe's water rights claims were resolved through a water rights quantification agreement (Agreement) approved by Congress in 2010 (Public Law 111-291). Although the Agreement was approved by Congress, the Agreement will not become enforceable until certain conditions are met, including the issuance of a Record of Decision by the Secretary of the Interior approving construction of the Miner Flat Dam and other water infrastructure for use by the Tribe. Because of delays in designing Miner Flat Dam, Congress extended the deadline for issuing the Record of Decision from May 1, 2021, to May 1, 2023.

YAVAPAI-APACHE NATION

During FY 2020, ADWR had discussions with the Yavapai-Apache Nation regarding a potential settlement of the Nation's water rights claims. It is expected that settlement discussions will be ongoing during the next fiscal year and will involve the United States and various non-tribal State water users. Those discussions will be confidential.





ARIZONA DEPARTMENT OF WATER RESOURCES

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